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THE
HISTORY
OF
MEDICINE, SURGERY,
AND ANATOMY, 7

FROM THE
CREATION OF THE WORLD, TO THE COMMENCEMENT
OF THE NINETEENTH CENTURY.

BY WILLIAM HAMILTON, M.B.

*Ut alimenta sanis corporibus Agricultura, sic sanitatem
aegris Medicina promittit.* CELSUS.

IN TWO VOLUMES.
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PREFACE.

HOWEVER arid and uninviting the prospect of a History of Medicine may appear at a distance, it will be found gradually to improve, and become full of interest, wonder, and animation, as we proceed. The desert disappears as we advance, and we find our attention irresistibly fascinated by the multitude and variety of the objects which present themselves. The History of Medicine is, in fact, the history of the human species, uncontaminated by those civil discords and fearful atrocities, those crimes and disorders which blot the page of other histories, and stamp man, created in the image of his maker, with the visage of a fiend and the heart of a brute. The History of Medicine, on the contrary, is the history of peace and good will, of endless harmony, and unceasing philanthropy. Instead of recording the desolations of war, and the growth of immorality—the deadly effects of human passions, and the bloody triumphs of senseless ambition—her province is to note the diminution of mortal suffering; and the only triumphs which she records are those obtained over sickness, death, and sorrow.

Lost in the depths of an unrecorded antiquity, the earlier pages of medical, as well as general history, are few, obscure, and unsatisfactory. Of the years before the Flood, we can catch but those rare and partial glimpses which Omnipotence has been pleased to reveal in the writings of Moses—glimpses which are hardly sufficient for the construction of a plausible hypothesis, or the foundation of a probable conjecture. Like travellers enveloped in an Alpine mist, we wander in darkness and uncertainty, without compass to direct, or planet to enlighten us—

*Involvère diem nimbi, et nox humida coelum
Abstulit—*

The same darkness, doubt, and uncertainty, mark our progress through the earlier periods of Egyptian and Grecian history, and we find ourselves bewildered in a motley crowd of Apises and Osirises, of Thouths, of Tazuts, and Serapises, of Orpheuses, Apollos, and Esculapiuses, whom we are at a loss to discriminate from each other, and who bear so little similitude to substantial personages, that we seem to be traversing the land of dreams and the regions of romance, rather than those of real history and actual events. It is not till we approach the confines of Christianity that the darkness begins to lessen in intensity, the outlines of objects faintly to appear, and probability to occupy the place of doubt and delusion. Hippocrates is the first who stands in tolerable distinctness before us, actively endeavouring to dissipate the mists of ignorance, and rescue the art of healing from the hands of imposture and superstition.

The Birth of Christianity at length shed a new and glorious illumination over the world, and the human mind, emancipated from the trammels of superstition, began to feel and exert its powers. But in the very infancy of this new-born day, a portentous eclipse once more involved the world in its blackest shade, and the fetters of ignorance chained anew to the earth the celestial mind of man, that

Divinus particula auris—

till, at length, the discovery of the art of Printing unbarred afresh the gates of Heaven, and let in that flood of light, of knowledge, and of wisdom, which enabled men to emancipate themselves again from the slavery of superstition—to take their proper place in the ranks of created beings—and, in ennobling themselves, in gradually exalting their understandings and amending their hearts, to pay at length the worthiest homage to the goodness of their common Parent, and prove themselves to be—as the Almighty himself originally formed them—inferior only to the Angels.

Such is the nature—such the progress—such the termination—of a History of Medicine;—and if the journey be commenced in darkness and perplexity, it terminates at least in the regions of meridian brilliancy and joyous certainty.

In performing this long but interesting journey, the incidents, which were few and scattered at the commencement, thicken as we advance—the landscape,

which was at first but dimly seen, becomes distinct and bright—the darkness of the night fades away, and the glory of the morning reveals fresh objects for our admiration, and new discoveries for our surprise. If, amidst the multitude of objects which claim our notice, some have been overlooked, the benevolence of the reader will surely not suffer itself to be withheld on account of such casual inadvertence.

Plymouth, April, 1831.

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HISTORY OF MEDICINE.

CHAPTER I.

Difficulty of tracing the first Dawn of Medical Science—Conjectures of Scholastic and others respecting the Origin and Progress of Medicine before the Flood—A conjecture as to the identity of Tubal Cain with the Thoth or Thaut of the Egyptians, who was the same with the Hermes Trismegistus of the Greeks—Circumstances the First Surgical Operation on record—State of Medicine among the Egyptians, the Jews, the first Cataplasms on record—State of Medicine in Hindostan, in China—Immolation for the Small Pox in China, not depended upon as a security against subsequent Infection—Judicial Medicine, and Medical Men of the Chinese—Progress of Medicine among the Greeks—Orpheus, Melampus, Chiron, Esculapius, Pythagoras, and his pupils Alemaon and Empedocles—Commencement of the Practice of Medicine as a distinct Profession—Democritus of Crotona, and Aesculapion—Introduction by the latter of the practice of Fumigation—Gymnastic Schools of Medicine.

It might have been expected that the origin of a branch of knowledge, so conducive to the welfare and so essential to the preservation of the human race as the Art of Healing, would have been preserved among men with a kind of religious veneration, and been traceable to its

remotest source, with a distinctness proportionate to its interest, and a precision equal to its importance. The reverse, however, is found to be the case, and the farther we attempt to penetrate into the mists of Antiquity the more indistinct does the object of our pursuit become. In place of the certainty which we might have anticipated from a nearer approximation to the head of the stream, we experience increasing perplexity; and where we might hope for the guidance of truth we find ourselves embarrassed by the delusions of fable.

Of the State of Medicine before the Flood we are destitute of the slightest authentic records on which we might form a conjecture: we are justified, however, by many circumstances recorded in the Holy Scriptures in believing that Medical, as well as many other branches of useful knowledge, had arrived at a very considerable degree of perfection in the antediluvian ages; although, whether man was indebted for his acquaintance with this and many other branches of Science to an immediate revelation from the Almighty, or to the exercise of his own judgment, roused into action by necessity, and aided by accidental discoveries, is one of those problems which no effort of mere human reason can ever hope to solve.

Schulze, a German of considerable erudition, who filled the chair of a Professor, at Altdorf, early in the last century, traces the origin of Medicine to the period of the fall, and indulges himself in much curious speculation as to the

remarks which our first parents may be supposed to have made to each other on the subject of their natural wants, appetites, and sensations: he also points out the strong probability that Adam, yielding to the all-authoritative voice of necessity, "*laboranti amica obstetricis manus adhibuisse, sicque Chirurgiæ primam forte operationem exercuisse*"—discharged the office of an accoucheur to his wife, and thus performed the first operation in Surgery*.

Le Clerc also, a French writer of no mean ability, whose History of Medicine is a work of considerable merit, giving a copious view of the doctrines of the ancients down to the days of Galen, and written in general with strict impartiality, discusses with considerable ingenuity the question "*si la Médecine est venue immédiatement de Dieu,*"—whether the science of Medicine emanated directly from Heaven? a question the affirmative of which rests upon probability rather than evidence, and whose solution is more curious than useful. He also traces the practice of Medicine in its various branches to the days of Adam, whom he shews to have been of necessity the first Physician, Surgeon, and Accoucheur, in the world†.

* J. H. Schulzii Historia Medicinæ a rerum initio ad A. U. C. 535, deducta. 4to. Lipsiæ, 1728. Ejusdem Compendium Historiæ Medicæ, a rerum initio ad Hadriani accessum. 8vo. Hale, 1742.

† Histoire de la Médecine, où l'on voit l'Origine et les progrès de cet Art avec figures: par Daniel le Clerc. 12mo. Geneva, 1696. 4to. Part 3me. Amsterdam. 1725.

Brambilla*, a surgeon of emiunence, who practised for many years at Vienna, labours to trace the invention of surgical instruments to Tubal Cain, the son of Lamech, grandson of Cain, and great grandson of Adam, who lived about 3875 years before the birth of our Saviour, and who was, as the 22d verse of the 4th chapter of Genesis explicitly informs us, "*an instructor of every artificer in brass and iron,*" and hence not unlikely to have been, as Brambilla ingeniously and plausibly contends, the first contriver and fabricator of such simple instruments as the rude state of surgical knowledge in those early ages required.

There can be little doubt that the origin of a large proportion, if not of the whole of the wildest fables of the Heathen Mythology, may be traced to facts recorded in the sacred volume: and that numberless occurrences which are represented as having taken place, and numberless personages whom we find spoken of as having lived at periods considerably posterior to the great catastrophe of the Deluge, are to be sought for, if we would find their real prototypes, in the ages which preceded that memorable event, and in the very infancy of the human race.

The resemblance of character which we find to subsist between the celebrated Thouth or Taaut of the Egyptians, the reputed secretary of Osiris, generally supposed to have been the same with

* Brambilla was placed by the Emperor Francis the Second at the head of the Academy of Surgery, founded, under the auspices of that monarch, at Vienna in the year 1743—a proof of the high reputation he had acquired for talents and professional skill.

the *Hermes Trismegistus* * of the Greeks, and the great grandson of Adam, is sufficiently close to warrant our concluding, notwithstanding their dissimilarity of name, that they are one and the same individual. Taaut, as we learn from *Diodorus*, was worshipped as a Divinity in consequence of his invention of letters, and every other useful art and science, while Scripture records the valuable services of the antediluvian Tubal, the "instructor of every artificer in brass and iron": laconic as this description is, it may be found sufficient, when taken in conjunction with other circumstances, to justify a suspicion of the identity of the fabulous Taaut with the true Tubal.

In referring, with *Brambilla*, the origin of surgical instruments to a period so remote as the second generation from Adam, it must not be supposed that men had, in those early days, made any very great proficiency in the art of Surgery, or that the instruments which they employed were of other than the rudest and most inartificial construction. As the Medical knowledge of the Antediluvians may be reasonably presumed to have been confined to the exhibition of a few vegetable simples of the mildest character and most innocuous activity, so we may justly conclude that their surgical skill was equally restricted to the treatment of the most ordinary wounds and the application of the least complicated bandages; to the reduction of a dislocated

* *Τριμυηρον*—*Ter maximus*—Thrice greatest—so named by the Greeks on account of his great learning, important services, and numerous virtues.

ORIGIN OF CIRCUMCISION

joint, or the setting of a broken limb. The amputation of a sprained leg, or the trepanning of a fractured skull, would have been a flight of skill far transcending the narrow limits of Antediluvian knowledge—a deed of daring far beyond the cautious timidity of an age of inexperience: and the practitioner who should have had the hardihood to attempt the operation of Lithotomy would have been viewed as little, if at all, better than a murderer.

It was not till long after the catastrophe of the deluge, when the earth began to teem anew with inhabitants, and the moral inundation of vice to spread once more over the face of the globe, that the Almighty found it necessary to select another Noah from among the posterity of Adam, in the person of Abraham, and to distinguish him and his descendants from the nations by whom they were surrounded, as a people set apart for himself by the ordinance of a peculiar operation performed upon the males—an occurrence which furnishes the very earliest recorded instance of a surgical operation, performed long antecedently to the most remote date of any authentic profane history*. With the solitary exception of the surgical rite of Circumcision, history, whether sacred or profane, furnishes us with no information whatever respecting the progress of either medicine or surgery during the patriarchal ages. We can, however, readily believe that the practice of both must have been

* About 1698 years before the commencement of the Christian era.

of the simplest description, such alone as the unsophisticated manners and unvitiated tastes of those days demanded, and such only as the paucity of human ailments rendered indispensable; for disease had not yet attained to that complexity of character which, in our days, calls for the utmost skill in diagnostics, or acquired that malignity of virulence, which too often baffles the utmost efforts of art. Man's food was simpler in its character, and his habits more consonant to the dictates of nature, than at present: luxury had not yet corrupted his tastes, nor vice broken down his constitution.

As we descend the stream of time, and approach the limits of authentic history, we find the study of Medicine first cultivated with method, and reduced to something approaching to systematic arrangement, among the inhabitants of Egypt; a people who in many points exhibited a close resemblance to the manners of the Chinese, and who, notwithstanding the extravagance of their claims to antiquity, and the gross absurdity of some of their traditions, were undoubtedly the most forward of the primitive nations in the march of civilization and the cultivation of knowledge. Anatomy has been imagined by some to have been practised by the Egyptians at a period long antecedent to the earliest existing records, and Manetho, a distinguished Egyptian writer, is represented by Eusebius as stating that Athotis, a traditionary monarch of that country, wrote several treatises on Anatomy. But, when we learn that the era assigned to this fabulous monarch, by the

wild and improbable chronology of the Egyptian priests, would carry us back to an age prior, by many centuries, to the formation of Adam, as recorded in the writings of Moses, we can easily estimate the degree of credibility to which such a fable is entitled.

That accidental circumstances may, even in the patriarchal ages, have given men some imperfect notion of the internal structure of the human frame, or that the inspection of the viscera of those animals whom they were obliged to kill, either for sacrifice or for food, may have led them to reason from some supposed analogies respecting the disposition and functions of the corresponding parts in the human body, is by no means improbable: but that this knowledge amounted to any thing at all approaching to correct Anatomical Science few will feel disposed to admit: and there are, besides, the strongest grounds for believing that the practice of human dissection did not commence before the days of Erasistratus and Herophilus, but a few centuries before the birth of Christ, or, at the earliest, before the days of Hippocrates.

Previously to this period, superstitious prejudice was too firmly rooted in the human breast to admit of an act which was reputed to be so offensive to the Gods as the violation even of those bodies which they had slain without compunction in the field, much more the dissection of those who had died from natural causes in their beds. Hence it was that men, being destitute of the means of acquiring a just

knowledge of the structure, functions, and relative positions, of the human viscera, were unable to form a correct judgment as to the seat or causes of disease, or to adopt a rational method of cure. And hence, also, it arose, that, in an age singularly prone to superstition, when every event surpassing the narrow limits of existing knowledge was referred by general consent to the direct agency of Heaven, and when ignorance sought concealment beneath the mantle of mystery, men were disposed to regard as the result of demoniac influence, or celestial wrath, every complaint whose origin baffled their conjectures, or whose obstinacy bade defiance to their skill. Disorders, which the modern practitioner views without alarm and treats without difficulty, were regarded by the nations of old with superstitious dread, and the sanctity of the priest, or the charlatantry of the impostor, were called in to supply the impotence of art, and fill up the vacancy of knowledge. Traces of this superstition, and examples of this credulity, surviving the night of darkness which overshadowed the earlier and the middle ages of the world, may even yet be discovered amid the institutions of Christianity and the illumination of knowledge.

From what has been just said, we can readily understand, without having recourse to any unsupported hypothesis of direct revelation from Heaven, how almost every nation of antiquity came to refer the origin of Medicine to the immediate instruction of the Gods: and how the Isis and Osiris, the Apis and Serapis of the Egyptians,

came to be regarded as Divinities, and worshipped with divine honours. According to the traditions of Egypt, the first collection of Medical and other precepts was derived from Thouth, or Taaut, the Secretary, as we learn from Diodorus, of Osiris, and a man, according to tradition, of the most varied talents, and almost unearthly skill. This extraordinary personage flourished, according to profane history founded upon uncertain legends, nearly two thousand years before the commencement of the Christian Era; but, if the conjecture hazarded in the beginning of this chapter respecting his identity with Tubal Cain should have the slightest pretensions to credibility, at least a thousand years earlier.

Of the precepts thus received from Taaut, the majority related to the practice of Medicine, and were in process of time collected into a volume distinguished by the title of "Einbre." This constituted the text-book of the priests, who were the only physicians in those early days; and they were required to follow it in their practice as a sacred and unerring guide: certain of impunity, whatever might be the event, so long as they scrupulously adhered to its prescriptions; but, menaced with the forfeiture of life for the slightest attempt at deviation, however favourable the result. Better, as it appeared to the Egyptians of those days, that ninety and nine should fall victims to an erroneous practice, than that the validity of the precepts delivered by the mighty Thouth should be called in question, or one heretical patient presume to recover in contradiction

to them ! Prejudices like this, however, irrational as we may justly deem them, were not confined to the superstition of the Egyptians, or the darkness of ignorance : their existence has been felt, and their influence acknowledged even beneath the light of Christianity and the diffusion of knowledge ; pervading the most sacred depositaries of literature, and contaminating the wisdom of sages.

Next after Thouth, in the Egyptian Annals of Medicine, we find Apis and Serapis recorded among the earliest founders, or rather improvers, of medicine, and, like him, worshipped after their death with divine honours. Apis, as we learn from the mythology of the Greeks, had been a king of the Argives, whose zeal for the improvement of his fellow-creatures led him to resign his dominions in favour of his brother Egaleus, and travel to Egypt for the express purpose of reclaiming the inhabitants from barbarity, and instructing them in the arts of civilized life ; by which means he so ingratiated himself with his pupils, that they raised him to the throne of their country, and worshipped him after his death, under the similitude of an ox : from which circumstance the Israelites afterwards, in their travels through the wilderness, were led to the idolatrous worship of their golden calf. Apis flourished about 1745 years before Christ, and was regarded by some as the inventor of medicine. His reputation, however, fell far short of that of Serapis, to whom divine honours were paid, as presiding peculiarly over

health, both by the Egyptians and the Greeks. The most ancient temple consecrated to the memory of Serapis was that at Memphis, where its splendid remains and colossal proportions continue to attract the admiration of travellers, and repel the encroachments of time.

The art of healing being thus traced to celestial origin, its exercise became almost of necessity connected with the ceremonials of religion, and fell to the exclusive share of the priests, whose presumed influence with the inhabitants of heaven naturally pointed them out as the most effectual intercessors with the offended divinities, and the most potent auxiliaries in the combat with disease. To secure to themselves the permanence of this monopoly, and the full advantages of this delusion, the priests laboured with infinite address, and consummate skill, to disguise the rules of their practice beneath a multitude of superstitious observances, and to surround it with a fence of imposing and impenetrable mystery. Magic and divination, which were regarded as the very highest branches of the profession, were especially reserved for the Chief Priests, as their exclusive right; while the study of the six hermetical books on medicine, which contained all that was then known of the anatomy of the human body, together with a general exposition of the doctrines of medicine and surgery; the history, symptoms, or treatment, of disorders of the eyes, and the complaints incident to the female sex; and the method of constructing and employing such surgical instruments as were then known,

were left for the Pastophori, or *imagr* bearers, who held a very subordinate rank in the order of the priesthood, and upon whom chiefly devolved the more menial offices of the temple. Such was the distribution of medical practice in those days, and such the nature of the studies enjoined to the Pastophori, to whom was assigned the application of the remedies prescribed in the sacred volumes of Thouth, while their superiors in rank affected to direct the course of the malady by the exercise of superhuman powers, and to predict the issue by their vaticinal skill.

These chief Priests, or Magi, are the same of whom Moses speaks in the 7th and 8th chapters of Exodus*, under the names of the *wise men*, the *sozcerers*, and the *magicians*, of Egypt, whom Pharaoh called in to rival the miracles performed by Moses, and put to the blush the champions of Israel: but, however expert in the legerdemain of their calling, and capable of imposing upon the credulous, or even deceiving the wary, their jugglery was found impotent when opposed to the power of Omnipotence, wielded, at the express command of Heaven, by Moses and Aaron, in the presence of Pharaoh and his people.

As the office of these priests was hereditary, and their privileges were exclusive; as the son trod with unvarying servility in the footsteps of his father, and improvement was effectually arrested by the penal discouragement of every attempt to deviate from the canons of practice laid down in the volumes ascribed to Thouth; as the interests

* 1491 years before Christ.

of the priests led to the perpetuation of the popular delusion respecting the cause of disease, and the necessity of propitiating the favour of the Gods by prayers, and obtaining a remission from suffering by liberality to their ministers; while the door of salutary competition was effectually closed by the exclusion of all but the initiated few, and no opportunities afforded for the display of superior talent, or the exercise of superior skill; it cannot be a matter of surprise that medical knowledge should have remained so long stationary, and should have become almost retrogressive; or that the conquest of disease should have been effected rather by the efforts of nature counteracting the operations of art, or by a fortunate but unpremeditated concurrence of circumstances, than by any combination of skill, or exertion of judgment.

Thus enveloped, as the practice of these pretenders to knowledge was, in the densest clouds of mystery and ignorance; disgraced too by the lowest charlatanism and the most barefaced imposture; it cannot be expected that many of its details should have survived the wreck of ages, or that many of its secrets should have been suffered to transpire beyond the circles of the initiated, or the *penetrabilia* of the temples. Estimating their practice, however, from what we observe among other nations, we can readily believe that the extent of their skill, when divested of the garb of imposture wherein it was shrouded, consisted in accurately watching, and carefully seconding, as far as the narrow limits of their knowledge would allow, the indications furnished by nature to direct the cure: a conjecture which

is strengthened by the fact recorded by Aristotle, that it was contrary to the rules of their practice to interfere with the progress of the complaint earlier than the fourth day from the attack ; by which means, if it did not terminate in death or recovery, before the expiration of that period, they secured to themselves sufficient opportunity to watch its progress, and to detect those efforts of nature which, judiciously seconded, promised to lead to a successful issue, and a further confirmation of their own skill, and pretended influence with the Gods.

About the time of Herodotus, a revolution appears to have taken place in the practice of medicine among the Egyptians, which had hitherto been confined exclusively to the priests. At this period, or about four centuries and a half before the Christian era, every distinct distemper, says that historian, had its own physician, who confined himself to the study and cure of that alone ; so that every place was crowded with physicians : for one class had the care of the eyes, another of the head, and another of occult diseases. This description, given by Herodotus, appears hardly applicable to the *ἱερό-ἰατροί* or Priest Physicians, of whom we have hitherto been speaking ; but seems rather to indicate the *Jatraliptæ* and other esoteric practitioners, who began, about this time, to contest the palm of popularity with the priests.

From the manner in which Herodotus speaks of this distribution of the several departments of medical practice, it might have been reasonably

imagined, that the professors of each, from bestowing their undivided attention on one particular complaint, would have acquired a facility in the diagnosis, and an expertness in the treatment, which must have ensured almost uniform success, and not only have surpassed the skill of their contemporaries, but been even without a parallel among the scientific improvements of modern times. When, however, we recollect the holy horror with which the Anatomy of the human body continued to be regarded by the great mass of mankind, and by which they were debarred all access to the only source of correct information as to the human viscera, and the disorders to which they are subject, and call to mind the various other difficulties which they had to surmount in their pursuit of professional knowledge, we can feel little difficulty in believing that, in point of practical skill, they were little, if at all, superior to their spiritual rivals; and were more upon a level with the unlearned empirics of modern times than with the regular professors of the science, even in those days. That this is no inaccurate estimate of the extent of their skill, is abundantly proved by their inability to cure a simple luxation of the foot, which Darius, the son of Hydaspes, received while hunting. But, however deficient they were in surgical skill, their acquaintance with the simples of the vegetable kingdom appears to have been considerable, and their pharmaceutical knowledge to have extended to the more active properties of some of the most powerful articles

of the modern *Materia Medica* ; as, for example, to the diuretic powers of Squill in hydropic complaints, and the corroborant effects of the salts of iron, in the cure of disorders arising from a want of proper tone in the system.

Led astray by what is recorded in the 2nd verse of the 50th chapter of Genesis, respecting Joseph's commanding " his servants the physicians to embalm his father," some writers have too hastily concluded that the practice of medicine was followed as a distinct profession in Egypt, as early as before the death of Jacob, or about 1700 years before the Christian æra; and formed to themselves an erroneous idea of the grandeur, the luxury, and the politeness, which prevailed there at that remote and barbarous period. But, when we consider the manner in which the process of embalming was conducted; the small estimation in which operators of this description were held; the great subdivision of labour for which the Egyptians were remarkable; and the severe restrictions imposed upon the interference of persons of one profession or calling with those of another; we cannot but admit the strong improbability that any of the physicians whom Joseph's affluence might have enabled him to retain in exclusive attendance upon himself and his family would consent, or even be allowed to degrade himself by the performance of what was regarded as a menial operation; and must feel disposed to believe, that the conclusion at which the writers alluded to have somewhat

precipitately arrived is founded upon an erroneous version of the Hebrew expression *חַפְזֵי*, which, in place of being rendered, as in the English version, by the term physician, is explained in the translation of the Seventy, (which from the age and place in which it was made, as well as the learning of its authors, must be deemed a more competent authority upon all subjects of local customs and national peculiarities than our own,) by the Greek word *ἐταφιασταί*—funeratores—undertakers—and not by that of *ἰατροί* or *ὑγιατροὶ*, which would have corresponded with the term physicians, adopted by the translators employed by King James. Hence we have no sufficient warrant for concluding from this passage that medicine began to be practiced as a distinct profession in Egypt, at any time prior to the period assigned by Herodotus, which must have been at least 1200 years later than the death and embalming of Jacob.

The Jews, on quitting the territories of Egypt, in which they had been resident 430 years, necessarily carried with them many of the customs and institutions of those with whom they had been in the habit of associating. It cannot therefore be a matter of surprise to find the priests among them, as among the subjects of the Pharaohs, engrossing to themselves the whole of the practice of medicine. The Jews, being a peculiar people, selected by the Almighty especially for himself, and placed almost directly under his own immediate government, furnish instances

innumerable in the course of their history of the miraculous interposition of the Deity, both in the infliction and removal of diseases; nor can we, without directly impeaching the veracity of Scripture, deny this singular and important fact. Indeed, on this point we have the express declaration of God himself, pronounced in a manner too clear and too positive to admit of dispute or qualification, and occurring in more than one or two instances throughout the Old Testament: as, for example, in the 15th chapter of Exodus, 25th verse, where he declares to the Children of Israel by the mouth of Moses, that "if thou wilt diligently hearken to the voice of the Lord thy God, and wilt do that which is lawful and right in his sight, and wilt give ear to his commandments, and keep all his statutes, *I will put none of these diseases upon thee which I have brought upon the Egyptians; for I am the Lord that healeth thee.*" Again, in corroboration of this positive declaration, we find in the 12th chapter of Numbers, that Miriam was miraculously punished by the instantaneous infliction of Leprosy, for daring to murmur against the authority of Moses, and as miraculously healed, at his intercession, after a penance of seven days' exclusion from the camp. Even at much later periods of the Jewish history, and down to the times of our Saviour, instances of divine interposition in the infliction or cure of disease may be found in various parts of the Scriptures—as in the case of Azariah, King of Judah, who was smitten with Leprosy for disobedience to the

commands of God* : that of Gehazi†, who was similarly smitten for the combined offences of falsehood and fraud : and again in that of Hezekiah, King of Judah, about 720 years before Christ, who was restored from a dangerous illness in consequence of his prayers and supplications to the Almighty‡.

But, although thus compelled, by authority which precludes the possibility of dispute, to admit the direct interposition of Heaven, in the infliction and cure of disease, not only among the Jews, who were, in an especial manner, under the immediate government of the Almighty, but in some few instances, as in the case of the Egyptians, among nations less directly under the divine superintendence, and for the sake of warning to his own or other people—we are by no means justified in believing that this interposition took place upon every frivolous occasion, or that it was always accompanied with miraculous deviations from the ordinary course of nature. The ordinary laws which govern the physical world, however familiarized by use, and divested of terror by the uniformity of their administration, are, in truth, as striking proofs of the omnipotence of the Deity, as the most stupendous display of miraculous power. The flash which darts from Heaven in apparent proof of divine wrath ; or the fearful earthquake which shatters half the globe, and levels temples,

* Kings, Book i. chap. xv. verse 5.

† Ibid. chap. v. verse 27.

‡ Ibid. chap. xx. verses 5, 6, and 7.

palaces, hills, and valleys, in one common destruction—is not a more convincing proof of the irresistible power of the Almighty, than the insidious poison which, lurking in the veins, slowly corrupts the great fountain of life, and undermines the system by silent, but not less deadly, approaches. The Deity has been pleased to set before our eyes an endless succession of miracles, governed by laws which he has enabled us to discover by the exercise of reason; but the same power which created these laws could with equal facility have made others perfectly the reverse, and can either suspend, modify, alter, or annul them at his pleasure. It is these laws which we are in the habit of terming secondary causes, and a deviation from these which we understand by the term miraculous; although in strict matter of fact both are equally miraculous. The Deity having thus subjected the whole of creation to the government of fixed laws, the most suitable that could be devised, employs these laws in the ministration of his will, without needlessly interrupting the general harmony of nature; and although the history of his inflictions upon the Egyptians may be supposed to furnish an apparent exception to this rule, we shall find, upon close examination, that even in the most terrific of the miracles wrought by the hand of Moses, the Deity thought fit to employ secondary causes, called into action in an unusual manner; whilst in the cases of Miriam, of Naaman the Syrian, of King Hezekiah and others, the most ordinary methods of cure then in use were directed, al-

though the successful application of the remedies was the indisputable result of divine favour. In the case of Miriam, we find the usual period of separation and purification enjoined and complied with; in that of Naaman, the detersive effects of ablution in the river Jordan^o; and in that of Hezekiah, we meet the first instance of a cataplasm directed for the maturation of a phlegmonous tumour. In all these cases, as well as others which might be adduced both from the Old and New Testament, though the interposition of Heaven is marked in the most impressive manner, the Deity thought proper to make secondary causes subservient to his will, and the instruments for manifesting at once his power and his beneficence. In other cases, however, where the interposition of the divine power is not manifested in an equally conspicuous manner, we are by no means justified in regarding the infliction of disease, even upon individuals of the Jewish nation, as the result of supernatural agency, or the effects of Divine wrath: at least when the origin of the disease can be satisfactorily traced to a natural and adequate cause. Were such complaints designed as a special punishment for our sins, the object of Heaven would be in a great measure defeated, unless the visitation were marked by such striking circumstances as would prevent the motive from being mistaken: we must also admit, that in cases where the infliction comes directly from the Deity and

^o Kings, Book ii. chap. v. verse 10.

out of the exact order of events, it must either be incurable by the mere application of human remedies guided by mere human skill, or curable only by the power of Heaven clearly manifested beyond the possibility of being misunderstood. But as complaints, except in such extraordinary instances, appear in general fully controllable by the employment of ordinary remedies under the guidance of human skill, we must in such cases undoubtedly admit that the cause was not supernatural, nor the recovery miraculous.

Our blessed Redeemer himself, indisputably the first authority in all such questions, expressly discountenances, in more than one passage in the Gospels, the idea of any other interposition than by the natural operation of those causes which were ordained from the beginning, except in cases in which the Almighty so clearly manifests his intention as to prevent its being misunderstood. Thus, in his parable of the rich man and Lazarus, he introduces Abraham, expressly declaring, in reply to the request that one might be sent from the dead to his brethren, that, "if they hear not Moses and the Prophets, neither will they be persuaded, though one rose from the dead*;" and again†, in reply to a question from his disciples, respecting the man who was blind from his birth, as to whether this privation was the result of punishment for sin committed, either by the blind man himself, or his parents, he expressly

* Luke, chap. xvi. verse 31.

† John, chap. ix. verses 2 and 3.

21 MEDICAL KNOWLEDGE IN HINDOSTAN.

says, "neither hath this man sinned, nor his parents; but that the works of God should be made manifest in him." The seeds of disease, and the germ of dissolution, were firmly implanted in the constitution of man, at the period of the fall, and formed part of the curse denounced against Adam and his posterity; and although man may hasten their premature development, by the abuse of his powers, by early intemperance, and licentious indulgence; or retard it, within certain limits, by regular habits, and by medical skill, he must, sooner or later, whatever his nation, and whatever his belief, whether Jew or Gentile, Christian or Infidel, undergo the sentence passed upon him even before his birth, and be gathered to his fathers. No reasoning respecting disease among nations not, like the Jews, under the immediate government of the Almighty, can be fairly deduced from any evidence contained in the Scriptures: and no justification of the selfish and superstitious impostures, of either the Christian or the Pagan Priesthood, can be found in the insulated and peculiar examples recorded by the inspired authors of the sacred volume.

Notwithstanding the progress which recent researches, no less than ancient traditions inform us, was made by the inhabitants of Hindostan, at the most remote periods, in other branches of knowledge, and in the abstruse science of Astronomy more especially; their proficiency in the art of healing does not appear, from any evidence which either ancient history or modern discovery affords, to have equalled that of nations, in other

respects far less enlightened. Their chief dependence, in the cure of disease, consisted, as Strabo informs us, in a rigid attention to diet, and the external application of cataplasms, and other topical remedies. Medicine appears to have been practiced chiefly, if not wholly, by persons who were termed *Σαμανες*, or Samaneans, who exercised their calling by the special permission, and under the immediate superintendence, of the magistrates. But their practice was encumbered with many difficulties, and the spirit of useful inquiry repressed by sanguinary, mistaken, and injudicious laws. The disclosure of a substance injurious to health, unaccompanied by its corresponding antidote, was punished with the penalty of death; and the door of improvement closed at the hazard of a halter against him who should dare to enter imprudently. The most valuable remedies were proscribed, from the apprehension of mischief arising from their injudicious application: and the courageous practitioner, who had ventured to employ some of those active preparations which are in every day use among modern physicians, would have endangered his neck, had he been unable to point out the remedy for their noxious effects, when wielded by the hands of malice, of ignorance, or of presumption. The mere existence of such a law sufficiently marks the low ebb of medical knowledge among the people who framed it: since it presupposes the fact, unconfirmed by any experience, of every poison having its appropriate and specific antidote, as every disease was believed, down almost to the

26 MEDICAL KNOWLEDGE OF THE CHINESE.

present day, to possess its specific and peculiar remedy.

While reviewing the state of medicine among the nations of the East, to whom Europe was indebted for so much of her early knowledge, it would be unpardonable to pass without notice that singular people, the Chinese, who have retained, with unvarying pertinacity, the manners and the customs of the most remote periods, and who exhibit, even in the nineteenth century, many of the peculiarities of the patriarchal ages. Among this remarkable people, if we give faith to their vain-glorious traditions, the study of medicine was coeval with the foundation of their empire, which, with an extravagance equalled only by that of the ancient Egyptians, they carry back to a period far beyond the Mosiac account of the formation of Adam, and the date of the Creation.

The medical code which serves as a guide to the practice of the Chinese physicians was the production, as we are informed, of a writer named Hoangti, who lived, as they pretend, above two thousand years before Christ, and whose memory is still regarded with the highest veneration. But they possess, likewise, it is said*, numberless works of high antiquity and deep erudition, in which the opinions, practice, and prescriptions, of the respective authors are clearly and systematically arranged. The characteristic hypothesis

* A general description of China, &c. &c. translated from the French of the Abbe Grozier. London, 1788. 2 vols. 8vo. vol. 2, page 467.

of most of these works is, that every disease acts successively upon the heart, the liver, the lungs, and the reins : that the crisis of the disorder is occasioned by its transition from one of these parts to another ; and that it is of the utmost importance to be able to distinguish the fit stage for attacking it by direct remedies, arresting its progress, or merely changing its course, in order to weaken it : and lastly, to determine when a crisis is to be hastened or retarded, or when the cure should be left wholly in the hands of Nature.

Vital heat, and radical moisture, the seat of which last they place in the heart, the lungs, the liver, and the reins, constitute, in the opinion of the physicians of the celestial Empire, the two natural principles of life, of which the blood and spirits are only the vehicles. They place vital heat on the contrary in the intestines, which they suppose to be six in number. They believe, also, according to Du Halde, that the body, with its nerves, muscles, veins, and arteries, resembles a stringed instrument, whose various parts emit various sounds, or rather have a temperament proper for each, and suited to their figure, situation, and particular uses ; in the same manner as a string emits a different sound according to the place where it is touched, or the strength or gentleness employed, discovering whether it be too much stretched, or too much relaxed. In short, the basis of their practice rests upon the hypothesis of a general consent or sympathy subsisting between all the parts of the body.

25 MEDICAL KNOWLEDGE OF THE CHINESE.

Such are the visionary and puerile theories of the Chinese physicians, which, as improvement has long ceased to have its course among them, may be fairly taken as a specimen of the crude and infantile notions which prevailed respecting the structure and uses of the various parts of the human frame, in the days almost immediately succeeding the deluge. Their practice had in general as little claim to the merit of rationality, as their theories; although they appear, in some few particulars, to have got the start of Europeans in the field of discovery. The circulation of the blood is said to have been familiarly understood by them long before the discovery made by Harvey* : and their prognosis in disease is founded chiefly upon an accurate knowledge of the variations of the pulse. One of their most ancient medical writers, who flourished about 200 years before Christ, composed an elaborate treatise on the pulse, which still serves them as a guide, and is held in high estimation. In feeling the pulse they observe many trifling minutiae, and affect a degree of grave solemnity which passes current with the multitude for knowledge; employing a considerable time in examining the beats, and comparing their difference, by means of which they pretend to discover the seat of disease, and to be able, without asking a single question, to tell the patient not only how and when his com-

* Grosier, 1 c. p. 482. Grosier's words, for which, however, he does not cite any authority, are, "it appears certain that the Chinese were acquainted with the circulation of the blood long before any of the nations of Europe."

plaint will terminate, but even the spot where he feels pain. They do not, however, trust solely to the pulse in the formation of their diagnoses and prognoses, but examine likewise the colour of the face and eyes, the state of the tongue, nostrils, and ears, and the sound of the voice.

They affect to trace the origin of the small-pox back to a period of at least 3,000 years, or 20 years beyond the æra of the Trojan war*. If this were really the case, it must be admitted to be somewhat singular that we are indebted for our earliest information respecting this loathsome and pestiferous disease, to Ahun or Aaron, a presbyter of Alexandria, who flourished about the time of Mahomed, or above 600 years after Christ. Pythagoras, who flourished nearly four thousand years after the Creation, or little less than 600 years before Christ, travelled, as history informs us, in quest of knowledge into the regions of the East, and must have heard something of this complaint, had it existed in a country so close to those which he visited, at the period of his travels: yet we have the strongest evidence in those medical works of the Greeks which are yet extant, of their utter ignorance of this remarkable complaint: of which consequently neither Pythagoras nor any other oriental traveller could have brought back the slightest information.

* A. M. 2756 Before Christ 1192 Three thousand years from the date of the publication of Gronov's work in 1788 will bring us to the year of the world 2736, or 1242 years before Christ, which was about 20 years before the expedition against Troy, and as much later than the time of Theæus. See Gronov l. c. p. 490.

Inoculation, as a prophylactic against the natural invasion of this complaint, is also said to have been practiced in China long before its introduction into Europe; and a fact of considerable importance is connected with this, which merits the more attention from being recorded in a work published many years before Dr. Jenner's discovery of the prophylactic powers of the vaccine virus, and consequently free from all suspicion of being partially related for the purpose of favouring one or other of the parties into which both the professors of medicine, and the world in general, have been divided with respect to its efficiency in fortifying the system against the invasion of variolous contagion. The fact, as stated in Grosier's own words, is this, that the Chinese place "less confidence" in the practice of inoculation "than the Europeans, and for this reason, because the former are convinced, by *numberless* instances, that it does *not* prevent a *return* of the small-pox when it becomes epidemical*."

This fact, one of the most curious perhaps in either the ancient or modern history of medicine, appears to have wholly escaped the observation of European practitioners, until the controversy respecting the prophylactic powers both of the Vaccine and the Variolous Virus directed their attention expressly to the subject; and in the attempt to prove the former inefficient in rendering the system insusceptible of the Variolous Poison, it was ascertained, almost beyond the possibility of doubt, not only that Variolous Inoculation is,

* Grosier, 1 c. p. 489.

as the experience of the Chinese had already taught them, insufficient for securing the patient with certainty from any subsequent attack ; but, what is still more important, that the disorder, even when communicated naturally, does not in all cases secure the patient against a recurrence of the malady. The Chinese affect to discriminate no less than 40 different species of Small-Pox, regulating their method of treatment not only by the nature of the climate and season, but also by the age and habit of the patient.

Among other instances of superior sagacity to which the Chinese pretend, one of the most singular perhaps is the method by which they affect to discover whether a man found dead by strangulation had been his own executioner, or had been strangled by others ; whether, in case of a body being found in the water, death preceded or followed its immersion ; and whether, in other cases, death has been the result of natural causes, or of felonious violence : which last, they pretend to be capable of determining, not only after the body has been for some time interred, and decomposition of the softer parts has commenced, but even after the total disappearance of the softer parts, and when the dry skeleton alone is left. The process by which these important discoveries, so essential to the due administration of justice, are said to be made, is too curious to require apology for its insertion here.

The body being taken up in all suspicious cases, is, after exhumation, carefully washed with vinegar ; a large fire is next kindled in a pit, dug

32 PROCESS FOR DETECTING MURDER.

expressly for the purpose and measuring six feet in length, three in width, and as much in depth; the fire in this pit is progressively augmented, till the surrounding earth becomes intensely heated, when the fire is removed, a large quantity of a vinous liquor, fermented from rice and honey, poured in, and the mouth of the pit covered with an osier hurdle, upon which the body is stretched out at full length. A cloth, supported in the form of an arch, is then thrown over both, in order to confine the vapour arising from the vinous liquor thrown into the heated pit, and direct its action to every part of the body. At the end of two hours the cloth is removed, and the body minutely inspected; when, if any blows have been inflicted, their marks, it is said, will appear distinctly upon the body. Even after the total decomposition and disappearance of the softer parts, when nothing but the arid naked skeleton survives, the process just detailed, is, if we believe the medical writers of the Chinese, sufficient to render the marks of any blows which may have been received, if of sufficient severity to occasion death, distinctly visible, although no fracture of the bone had been produced*. Such, we are told, is the skill to which the Chinese lay claim in the department of medical Jurisprudence, which, if really possessed, would far eclipse the most brilliant discoveries of our own age, and the utmost skill of our most scientific professors. When we come, however, to examine their medical writings, we find them, for the most

* Grosier l. c. page 490.

part, replete with the grossest absurdities, and destitute, or nearly so, of all real information: while the numerous schools of medicine and astrology, in which their youth are said to have been formerly instructed, live, if ever they had a real and substantial existence, only in the floating visions of recollection, and the doubtful legends of tradition.

Like their therapeutical and pathological works, the *Materia Medica* of the Chinese exhibits a heterogeneous farrago, of useless simples, and worthless remedies; of inert relics, and superstitious prescriptions: the prevailing feature of the collection is that preposterous absurdity which the previous examination of their puerile and contemptible doctrines might have led us to expect: hence we find, without surprise, that the flesh, gall, skin, bones, and ivory, of the elephant, are among the more prominent articles of the catalogue; or that the sea-horse, a marine insect about six inches long and bearing a remote resemblance in its form to a horse, should be gravely recommended for its reputed property of procuring the safe and easy delivery of a woman, as well as preserving the life of her offspring in cases of difficult and dangerous parturition. "It is sufficient," says a Chinese writer on the subject, "to place this marine insect in the hand of a woman in labour, and she will then be delivered of her burthen with the same facility as a ewe which has gone her full time." Intermixed, however, with these anile and frivolous absurdities, we discover some few articles of established merit,

and considerable activity, for our knowledge of which we are chiefly indebted to the Chinese—such as the *Tai-Hoang* or Rhubarb (*Rheum undulatum* ?) which abounds in several of the provinces, especially in that of *Se-tchuen*, which is accounted the best, and chiefly employed in conjunction with other medicines, and in decoction ; the *Tchan-ko-tse-chu*, or Cassia tree [*Cathartocarpus Fistula*] the aperient pulp of which is so well known in our shops* : and the celebrated *Ginseng* [*Panax quinquefolia*] called by the Manchew Tartars *Orhota*, or the queen of Plants, which constitutes one of the principal riches of Eastern Tartary. The Chinese have no less than seventy-seven different preparations of this celebrated root, which was in such demand among them as to be worth nearly its weight in gold.

Such are the more remarkable particulars connected with the History of Medicine in China, which have been detailed at considerable length, not only on account of their great interest, but also on account of their being by no means generally known.

* The *Cassia Fistula* tree was formerly cultivated upon most of the estates in the island of Dominica, in the West Indies, and such was the value attached to it by the French during the time they had possession of that fine island in the war of the American Revolution, that, by a Royal Ordinance, every planter was compelled to make a correct return of the number of these trees growing upon his estate. Few trees, except perhaps the *Cytisus Laburnum*, can equal the grace and beauty of this valuable tree, when covered with its golden blossoms, and destitute, or nearly so, of leaves, in the months of May, June, and July.

The History of Medicine, in the earlier ages of Greece, is enveloped, as in every other country with which we are acquainted, in the densest clouds of mystery and fable. History acquaints us that the greater portion, if not the whole of the philosophy and erudition of the Hellenic ages, was borrowed from the Magi of Egypt, and acquired within the walls of their temples. Pythagoras, indeed, who lived about six centuries after Æsculapius, with others of the more eminent of their philosophers, thirsting for a degree of knowledge beyond what the fountains of Egypt could supply, penetrated beyond the perilous wastes of the desert, and, traversing the vast peninsula of India, brought back from thence the doctrine of Metempsychosis, or the transmigration of souls, the mysterious powers of numbers, and other metaphysical dogmata of the Brahmins: but that they could have acquired in those regions any substantial additions to the stock of medical information previously existing either in Egypt or in Greece, is in the last degree improbable, as will sufficiently appear on reference to the notice already given of the state of medical science in Hindostan. Hence the probability is strong that the medical traditions of the Greeks were wholly derived from the schools of the Egyptians, and that, however disguised beneath an altered nomenclature, and perplexed through some slight discrepancies in the history and characters of their therapeutical divinities, the medical mythology of Greece and Egypt is essentially the same: and the Apis and Serapis, the Isis and

Osiris, and the Thouth or Tanut of the latter are to be recognised in the Apollo and Minerva, the Hermes and the Orpheus of the former. These two last appear to have been confounded together in the mythological fables of the Poets in such a manner as to render it difficult to determine whether they really were two distinct individuals, or the same individual spoken of under two distinct names—Orpheus, the reputed son of Apollo and Calliope, who is described as having inherited from his mother all those powers of melody which immortalized his name, and from his father all that skill in the art of healing which was the distinguishing characteristic of Thouth, being represented as instructing his countrymen, in the same manner as the Secretary of Osiris is said to have instructed the Egyptians, in the mysteries of religion, the charms of music, the fascinations of poetry, and the wonders of medicine.

But, according to some chronologists, even Orpheus, remote as is the age in which he is said to have flourished, is not entitled to the praise which an obscure and contradictory Mythology has awarded him, of being the first who instructed his countrymen in the science of Medicine. He is said to have been preceded, at no inconsiderable interval of time, by Melampus, the reputed son of Amythaon and Dorippe, who gave the most convincing proof of his acquaintance not only with the art of healing but also with the virtues of plants, in his cure of the daughters of Proetus, king of Argos, when labouring under the combined influence of melancholy madness

and consuming leprosy. Melampus, who appears, like the Hiero-iatrii, or Priest-Physicians of Egypt, to have united the art of raticination with the practice of Medicine, has had his memory handed down to posterity in the name of Melampodium*, given to Hellebore, the plant with which we are told he so successfully combated the insanity of the daughters of the Sovereign of Argos.

The next practitioner of eminence whom we find recorded in the medical annals of ancient Greece is the illustrious Chiron, the fifth son, according to fable, of Saturn and Phylira; whose skill in horsemanship, joined to his fondness for that exercise, gained him the reputation of being a Centaur, or monstrous compound of man and horse. This hero of mythological romance, to whom even the mighty Apollo himself is said to have been indebted for instruction in music, and Hercules in anatomy, appears to have flourished between the periods of the celebrated Argonautic expedition, and the siege of Troy, and must have

* MELAMPEDIUM is a name applied in modern Botany to a very distinct Genus from the Hellebore of the ancients, being plants of the new world, belonging to the Linnæan class and order of *Synœnesia Polygamia Necessaria*, and not possessing the peculiar cathartic properties of the celebrated Black and White Hellebores of the ancients, the former of which is believed to have been the same with the *Helleborus niger*, or Christmas Rose of the modern Botanists, a plant belonging to the class *Polyandria*, and Order *Polygynia*, flowering from January to March, and the root of which is drastically cathartic; while the latter is supposed to be the *Veratrum album* or White Hellebore of the moderns, a plant belonging to the class *Polygamia* and order *Monœcia*, the root of which possesses similar properties.

lived to a very advanced age, if, as we are informed, he instructed the leaders of both those expeditions in the rudiments at least of Medical and Surgical practice; since the interval between those two memorable events exceeded forty years, the former having taken place about 1234 and the latter 1192 years before Christ. Besides Theseus, who flourished earlier still than the time of Jason's expedition to Colchis, and Achilles who lived about forty years later, we find, according to Xenophon, among the number of his pupils, Amphiaraus the son of Oecleur, who, being carried against his will to the siege of Thebes, perished by an earthquake on the very day of his arrival, as he had himself foreseen: Castor, a Greek physician, who is said to have been the first who exhibited Pepperwort (*Lepidium*?) in cases of Epilepsy; the celebrated Æsculapius, the reputed offspring of Apollo and the nymph Coronis; with his two sons Machaon and Podalyrius, whose skill in Surgery has been immortalized by Homer, in his *Iliad*: and Hippolytus, the son of Theseus, whom Æsculapius is fabled to have restored to life at the intercession of Diana.

Of all these pupils, none attained to so high a pitch of renown for professional skill and successful practice, as Æsculapius and his two sons: such indeed was the reputation of Æsculapius, that his name became in after ages, and continues even to the present time, almost synonymous with that of Physician; and the science of Medicine has been, and not altogether without reason, re-

¹ to him as its founder. History does not

clearly inform us who, or of what country, he was; but conjecture points to Thessaly as the place of his birth, and leads us to imagine that he exercised the power of a sovereign over that territory.

Notwithstanding the fables interwoven with his history, and detracting from its credibility, we can collect enough from it, to be fully persuaded that his talents must have been of the very first order, and that his knowledge must have appeared supernatural in the days of darkness and superstition in which he lived. According to Cicero no less than three individuals were distinguished by the name of Æsculapius; all of them celebrated for their proficiency in Medicine and Surgery: the son of Apollo and Coronis, who must have been the pupil of Chiron, and father of Machaon and Podalyrius, to whom is ascribed the invention of the probe, and of bandages for wounds, and I who was worshipped chiefly in Arcadia, and may be regarded as the one so justly famed in medical history: the brother of Mercury, who was killed by lightning, in consequence, as the poets tell us, of a complaint made by Pluto to his brother Jupiter, that if he were to live, the infernal regions would be depopulated: and the son of Aristippus and Arsinoë, who first introduced the exhibition of purgatives, and the practice of tooth-drawing. The practice of purging, however, if not coeval with the earliest dawnings of medical practice, existed indisputably long before the times of any of the Æsculapii, since we find that Melampus, who is said to have

preceeded even Orpheus in practice, cured the daughters of Proetus king of Argos by the free use of Hellebore, one of the most drastic purgatives. Æsculapius, on his death, was elevated, by the superstition of his contemporaries, to the dignity of a God, and temples were erected to his memory in various places, in which he was worshipped with divine honours. Of these, the most splendid was that of Epidaurus, where quinquennial games took place in honour of him.

Of the doctrines or practice of these two celebrated patriarchs of Medicine, Chiron and Æsculapius, no certain fragments have been handed down to our days, nor do the fugitive and exaggerated notices of their exploits in the field of Medicine, which we find scattered throughout the writings of the poets, afford any correct means of estimating their real merits, or appreciating, with any thing like precision, the justice of their respective claims to the reputation with which history has endowed them.

During the interval of between five and six hundred years, which elapsed between the siege of Troy and the age of Hippocrates, we find the various branches of Medicine engrossed chiefly by the priests, among whom a spirit of rivalry gradually started up in behalf of their respective divinities—a rivalry which was not without its use in promoting the advancement of medical science, since it compelled the priests to call in the aid of observation to the cause of superstition, and to endeavour, by the exercise of their natural talents, to accomplish those cures, the

credit of which they craftily resigned to their Gods. The temples of Æsculapius were in a more especial manner famed for the success of their practice, and, being served chiefly by the descendants of that celebrated man, may be regarded as forming the most faithful depositaries of his doctrines, and the best schools of his practice.

In order to add at once to the celebrity of their temples, and to accumulate a mass of important practical information, it was carefully inculcated as a duty of religious gratitude which every patient was bound, on recovery, to pay, that a representation of the appearance of his disease, or an accurate model of the part affected, accompanied by a tablet* describing the symptoms, and recording the cure, should be hung up in the temple of the divinity to whom he ascribed his restoration. The accumulation of these medical trophies, while it attested the reputation and success of the temple, contributed to the improvement of the priests by providing them with a vast treasure of important and instructive facts and observations, the value of which they were fully capable of appreciating, and of the advantages of which it cannot be supposed they were slow to avail themselves. Thus these temples became progressively converted into schools of Medicine, varying in excellence, as they did in reputation; and ex-

* Specimens of a few of these votive-tablets have been preserved for the gratification of the curious by the industry of a German writer of the name of Gruter, among whose works they may be found.

hibiting instances of successful practice, or the reverse, proportionate to the supposed sanctity of the shrine, or more truly to the ability of the priests. Thus too the foundation was laid for that great revolution in Medicine which Hippocrates first effected, and which, by detaching Medicine altogether from the science of theology, emancipated it by degrees from the slavish trammels of superstition, and elevated it in time to the dignity of a rational science.

But these temples, or as they should now be called, Schools of Medicine, did not differ from each other more widely in the measure of their fame, than in the nature of their doctrines, and the methods of their practice. Thus empiricism, in its strictest sense, formed the distinguishing feature of the School of Cnidus in Asia Minor; a seminary which had the merit of producing Eurypbon, the author of the *Fragmenta Knidica* or Cnidian Sentences, and Ctesius, fragments of whose history of Persia have been preserved among the writings of Photius; while that of Cos, in which the illustrious Hippocrates received the first rudiments of instruction in the heart of healing, partook more largely of the dogmatic character, and laid the greatest stress upon the acquisition of a due knowledge of the diagnostic symptoms, remote and proximate causes, and the systematic method of treating the various maladies to which human nature is subject. At these schools, medical instruction was confined for a considerable period after the death of Æsculapius to his lineal descendants, who were distinguished by

the appellation of Asclepiadæ. In process of time, however, other students gradually obtained admission, on entering into a solemn compact, to conform strictly to the rules of the Asclepiadæ.

Already had sages, conspicuous for their talents and eminent for their attainments, directed their attention to medical research, and laboured to rescue so valuable an art from the ignorance of its teachers, and the absurdities of its professors.

Among the sages of this description, to whose useful labours the world is so much indebted, none held a more deservedly conspicuous rank than Pythagoras, who was born in the island of Samos about 600 years before Christ: a sage as distinguished for his modesty, as he was pre-eminent for his talents and attainments. 'Quitting the land of his nativity, while under the dominion of Polycrates, his zeal for the acquisition of knowledge led him first to Egypt, at that period, and for ages after, the grand emporium of medical and every other useful knowledge. Having at this celebrated fountain of learning exhausted the supply without diminishing his thirst, he sought the farther means of slaking it, in the then almost unexplored peninsula of India, whence he returned, bringing back with him the doctrine of Metempsychosis, the prejudices against animal diet, the mysterious notions respecting the powers of numbers, and other visionary and fanciful tenets of the East. Whether he penetrated into the Empire of China is a point upon which we possess no evidence beyond that which may be

gleaned from the fragments of his doctrines preserved by the ancients, none of which appear to countenance the idea of his travels having exceeded the limits of Hindostan. On his return to Europe he settled himself at Crotona, a small town of Magna Grecia, in Italy, where he founded a school about the time, as Cicero acquaints us, of Tarquinius Superbus : where, among the other branches of knowledge which he imparted to his pupils, the study of the animal economy was not forgotten. He likewise introduced a regular system of dietetics, and taught his pupils the theory, if not the practice, of Medicine.

Following the doctrines which he imported from the East, he exposed himself to no inconsiderable ridicule by his visionary attempts to account for every thing by the power of numbers : and his system of Therapeutics hardly rose beyond the level of that taught at the temples. The dawn of a brighter day as yet glimmered but faintly in the East, and the Star of Hippocrates had not yet risen to shed its beneficial lustre upon the regions of practice. Still, though Pythagoras fell infinitely short of the merit or utility of his distinguished successor, the rules he laid down for the regulation of diet and regimen are such as bespeak a rare union of natural talent, and profound observation.

It does not appear from any records which have reached to our days, that Pythagoras had sufficient courage to brave the prejudices of his age by the dissection of the human body ; but comparative anatomy, or the dissection of the

bodies of animals, seems to have been a frequent object of study among his pupils; one of whom, by name Alcmeon, is represented by the concurrent testimony of Aristotle, of Diogenes, and of Plutarch, to have acquired no inconsiderable skill in this department of medical knowledge: indeed, Chalcidius, in his commentaries upon the *Timæus* of Plato, asserts that he was the first who dissected brutes in order to discover the internal structure of their bodies. Alcmeon's opinions have been but imperfectly handed down to us; but from the little we can collect of them they appear to have been somewhat paradoxical: as is proved by the notion which he ventured to broach, that respiration in Goats was partly carried on through the medium of their ears. Health he supposed to depend on the accurate adjustment of heat and dryness, coldness and humidity, bitterness and sweetness, and other sensible qualities; while the derangement of this balance, and the preponderance of any one of these qualities, he considered to be productive of disease. Hearing resulted, he said, from the concave form of the interior of the ear; all hollow places resounding when any noise enters them. The seat of the soul he placed in the brain, where he supposed it to receive the odours inhaled in respiration, thus producing the sense of smell; while he imagined that it was by means of its humidity, moderate heat and softness, that the tongue was enabled to discriminate tastes. Alcmeon also, as we learn from Plutarch,

was the author of a theory of sleep, which he conceived to result from a return of the blood into the larger vessels, which, if suffered to proceed to the extent of complete congestion, would be productive of death; while he accounted for the phenomena of waking upon the supposition of its being the result of a redistribution of the blood throughout the system. Such were the chief opinions entertained by Alcmæon on physiological subjects, which do not bespeak a very accurate comprehension of the internal structure of the human body; and, when taken in conjunction with other circumstances, justify refusing our assent to the claim set up for him by some, of having practiced human Anatomy. Indeed there are the strongest grounds for believing that the dissection of the human body, or Anatomy properly so called, was not practiced, or at least not publicly taught, before the time of Herophilus, who flourished in the reign of Ptolemy Soter (or Lagus as he is otherwise called) little more than 300 years before Christ, and nearly a century later than Hippocrates. Hence we may not unreasonably conclude that if Alcmæon possessed in some degree the moral courage requisite to brave the superstitious prejudices of his age, his utmost flight of daring did not lead him to adventure farther than the dissection of those anthropomorphic animals of the tribe of Apes, whose external approximation of form to the outline of the human shape might not unreasonably lead him to expect a similar correspondence of internal struc-

ture; or a closer resemblance at least than could be hoped for in the viscera of animals more remote in form, and dissimilar in habits. From feeding upon the flesh of monkeys, and from the half-roasted limbs of these animals having been found in their huts, or seen suspended in the act of cooking over their fires, some of the mildest and most peaceable Indians of South America became stigmatized in the superficial narratives of hasty observers as anthropophagists, or cannibals; a charge from which the more careful enquiries of Humboldt and other modern travellers has fully exonerated them; and thus, from having been seen in the act of dissecting an Ape, Alcmæon may have acquired the reputation of an Anatomist.

Empedocles, a poet and philosopher of Agrigentum, a town of Sicily, who flourished about 578 years before Christ, and whose adventurous spirit of curiosity led, as history acquaints us, to the premature termination of his days in the crater of *Ætna*, was also a pupil of Pythagoras, and entertained, as we learn from Galen, some paradoxical opinions respecting the structure and uses of the various parts of animals, explaining the theory of respiration in the following manner. "As soon," says he, "as that humidity, of which there is a great store on the first formation of the *fœtus*, begins to be diminished, the air insinuating itself through the pores of the body succeeds it; after this the natural heat, by its tendency to make its escape, drives the air out, and when this natural heat enters the body

again the air follows it afresh. The former of these actions is called *Inspiration*, and the latter *Expiration*." This may have appeared very beautiful and very intelligible to the pupils at Crotona, and the contemporaries of Empedocles, but at the present day it would be found of somewhat difficult comprehension, not by the novice merely, but even by the adept.

As little was Empedocles acquainted with the true situation of the *fœtus in utero*, or the mode by which its circulation was connected with the vascular system of the mother through the medium of the umbilical cord and the complicated structure of the Placenta, when he imagined that respiration commenced before birth. His notions respecting the internal structure of the ear, and the manner in which hearing is produced, were equally vague and erroneous. Hearing resulted, according to him, from the impulse of the air striking against the interior of the ear, which he fancied to be convoluted like a shell, and fixed to the most elevated part of the body like a small bell, sensible of every undulation of the air entering from without. In conformity with the prevailing opinions of the day, he taught that flesh was formed of equal portions of the four elements; that two parts of water, one of fire, and as much of earth, went to form the nerves, the extremities of which, cooled and indurated by the surrounding air, formed the nails; while the bones consisted of equal parts of earth and water, or at least that these two elements greatly preponderated in their formation. He

looked upon the sweat and tears as being merely the thinner parts of the blood. Such was the puerile and unphilosophical system of physiology propounded by this distinguished philosopher, betraying an equal ignorance of the structure of the frame, and the analysis of the solids. He wrote a book in Greek on the nature of things, in which he compares the seeds of plants to the eggs of animals, both of them dropping when they have attained to maturity. But the philosophy of Empedocles was the philosophy of the age, in which the hallucinations of the imagination were allowed to usurp the place of observation, and the most childish theories to supersede the cautious deductions of reason and experiment.

Yet, though Empedocles suffered his judgment to be thus warped by idle theories and absurd speculations, he possessed a mind superior to many of the vulgar prejudices of his age, and a power of discrimination which enabled him, upon two occasions at least, to perform essential services to his fellow-creatures. The first instance occurred on the occasion of a pestilence which devastated Agrigentum, the place of his nativity, and which he discovered to proceed from noxious effluvia wafted to the city through openings in the adjoining mountains, by closing which, and excluding the pestiferous miasmata, he succeeded in combating the ravages of disease, and preventing a recurrence of the evil. And, upon another occasion, when the inhabitants of Selinus, a town of Cilicia, were afflicted with a plague

in consequence of the stagnation of the waters of the river which surrounded its walls, he ordered the streams of two neighbouring rivers to be turned into the channel, which, by scouring the bed of the river, and carrying away the putrifying filth, restored health to the town, and salubrity to the vicinity*. Thus the wisdom of his practice in some degree compensated for the nullity of his doctrines, and proved that his judgment was rather perverted through a mistaken philosophy, than erroneous from any defect of understanding.

Hitherto the practice of medicine had been chiefly monopolized by the priests of the several temples which had acquired a reputation for success in the treatment of disease; but their practice and their instructions were equally confined to the precincts of their respective shrines. The school founded by Pythagoras at Crotona appears indeed to have effected some change in this respect, and to have partially at least wrested the office of medical instruction from the grasp of the priests: but the doctrines of Crotona were more speculative than practical, more theoretic than experimental: and the philosophers of this school for the most part indulged themselves in reasoning upon disease more than in assailing it; and studied its symptoms and cure in the retirement of their homes, rather than in the chambers of the sick. Persons were yet wanting who pursued the art of healing as a distinct

* Diog. Laert. Lib. viii. Serm. 70.

and practical profession, unconnected alike with the pious impostures of the priests, and the unsubstantial reveries of a vain and frivolous philosophy. About this time, however, this salutary change, so essential not only to the improvement of the science but to the welfare of the sick, began to take place, and we find a race of men, some of them pupils of the school of Crotona, now beginning to start into existence, who, shaking off the idle trammels of foolish speculation, and pursuing the study of medicine with a view to practical utility, rather than empty fame, prosecuted its practice as a distinct and independent profession, and offered their services to all who required their aid, and confided in their skill. Practitioners of this description, from the circumstance of their not confining their practice, like the priests of the temples and the philosophers of the schools, to one particular spot, but travelling frequently from place to place as their services were required, and visiting their patients at their own houses, after the manner of the modern physicians, acquired occasionally the name of *xenodotus*, or travelling, or itinerant physicians, some of whom attained considerable repute.

That many practitioners of this description, whether stationary or peripatetic, were men of reputed skill, and held in considerable estimation, may be collected from the fact, that Democetes of Crotona, a physician of this description, was retained as family physician by Polycrates, the sovereign of Samos, at an annual income of two

talents. Democetes, whose practice included, as was usual in those days, the department of Surgery, having had the misfortune to be carried captive into Persia, acquired, during his residence there, no inconsiderable addition to his fame, by curing Darius of a sprain which had baffled the skill of the Egyptian practitioners, as well as by his successful treatment of a painful tumour of the breast, under which that monarch's wife, Atossa, daughter of the illustrious Cyrus, had long continued to suffer without having been able to procure the slightest relief.

Acron of Agrigentum, the contemporary and rival of his fellow-townsmen Empedocles, was also an eminent physician of this class, and the author of several medical works written in the Doric dialect. During the prevalence of the great plague which depopulated Athens, about 473 years before Christ, his professional services were of the first importance to the inhabitants in arresting the progress of the contagion, and diminishing the amount of the mortality. This he accomplished, as Plutarch acquaints us, by recommending large fires to be kindled in the streets, and by introducing the practice of fumigation [*πυρ κελιοντα παρακαλουν τοις νοσοουσιν*] which were considered as productive of benefit to many, and procured no small addition to his reputation.

About this time *Γυμνασια*, or Schools for gymnastic exercises, became extensively established throughout Greece and her colonial settlements, and contributed materially to the diffusion of medical knowledge, and the improvement of me-

dical practice; each of them becoming in fact a distinct school of medicine, and giving birth eventually to what was termed the Gymnastic school of medicine, under the auspices of Iccus, a practitioner of Tarentum in Calabria, and Herodicus, who resided at Selymbria or Selivria, a city of Romania, not far from the spot where Constantine the Great afterwards founded the splendid city which yet bears his name. At these schools for athletic exercises, a strict attention to the diet and regimen of the pupils being an essential requisite to their proficiency in these manly sports, the superintendence of this department fell to the lot of the *Γυμνασιάρχης*, *Παλειοτροφίλας*, or keeper of the *Παλαίστρα* or seminary for these exercises: while the *Γυμνασται*, or persons who presided over the exercises, were required to have a thorough acquaintance with the symptoms and treatment of diseases, so as to be able to apply timely remedies to such of the scholars as might have occasion for assistance; and the surgical part of the department was assigned to the *Ἀλειπται*, or persons employed to anoint the youths preparatorily to the commencement of their exercises; this office of the *Ἀλειπται*, or Anointers, we cannot suppose to have been much of a sinecure, where fractures, luxations, and a variety of other accidents, must have been of frequent occurrence, and the practice of phlebotomy in almost daily requisition.

CHAPTER II.

History of the Reformation of Medicine by Hippocrates; he rejects the absurd Doctrine of the Divine Origin of Disease; substitutes Observation for Hypothesis; his Writings corrupted by his Followers; introduces the Doctrine of the *Vis Medicatrix Naturæ*; his Maxims of Diet; opinion as to the Cause of Disease; distinguishes its course by Stages; accuracy in Observing and Recording the most Minute Circumstances; skill in Diagnosis and Prognosis; Means of Preserving Health; Diet; Bathing; Exercise; Purgatives; Emetics; Bleeding; Diaphoretics and Diuretics; external Applications; Anatomical Observations; Longevity and Death—Demetrius of Abdera suspected of Insanity from his zeal in the study of Anatomy: Hippocrates' opinion of him—Hippocrates' Sons and Son-in-law found the Dogmatic School; its errors—An Intermixture of the Pythagorean Philosophy and Egyptian Practice introduced by Endoxus of Cnidos and his pupil Chrysippus—Chrysippus an Enemy to Bleeding and Purging, but an Advocate for Vegetable Diet—Dioles of Caryatius the inventor of an Instrument for Extracting Arrows—Praxagoras, a bold and successful practitioner—Meneceates of Syracuse; his vanity; letter to Philip of Macedon, and practical rebuff—Aristotle, his great advantages—Theophrastus—Zeno—Epicurus—Alexandrian Library, and School of Medicine—Herophilus, &c. &c.

WE have now arrived at the second stage in the History of Medicine, when a revolution, far more important in its results, and far more permanent in its effects than that which we have seen to have been effected by the labours of *Æsculapius*, was accomplished by the genius of Hippocrates, that mighty father of medicine, whose name has obtained the veneration of more than twenty centuries, and whose authority commands respect even at the present day.

This celebrated physician was born in the first year of the 80th Olympiad, or between 400 and 500 years before the commencement of the Christian *Æra*, in the island of Cos or Coos, situated in the *Ægean sea*, at no great distance from Rhodes: an island singularly distinguished by having given birth to two of the most eminent men in their respective professions among the ancients: Apelles, the first painter, and Hippocrates, the first physician, of his age. Hippocrates, as Celsus justly remarks, in the preface to his works, was the first who emancipated Medicine from the trammels of superstition and the delusions of philosophy. His capacious mind and penetrating judgment clearly discerned, and successfully laboured to remove, the obstacles which the bigotry and superstition of the vulgar, the impudence, and vain pretences of the quacks, and the pride and vanity of the sophists, opposed to its improvement. His grand object, to the accomplishment of which he brought all the powers of his great and comprehensive understanding, was to purge medicine from the false and mischievous doctrines which corrupted and disgraced it, and to establish its fundamental principles upon a solid and rational basis, so as to render it, according to his own expression, strictly philosophical. With this view, he combated the dangerous and deceptive doctrine, so successfully inculcated by the priests in almost every age, of the celestial origin of disease; a doctrine which, by fatally paralyzing the efforts of the physician, could not but prove highly detrimental

to the patient: while the vain hopes it held out of recovery through the medium of prayers, sacrifices, and bribes for the intercession of the priests, could not fail to bring both religion and medicine into contempt. On this subject he expressly says, that "no disease comes from the Gods, one more than another, each acknowledging its own natural and manifest cause;"* and, in his treatise *de Morbo sacro*, he teaches men how to obviate false religious notions, and detects, with masterly ability and generous zeal, the impostures of those who, masking their ignorance beneath the veil of piety, pretended to subdue, by charms and incantations, those complaints which they had not the skill to encounter with the weapons of art. Our chief study, as he very properly observes, should be to learn the true properties of things, not by vain theories and delusive reasoning, but by actual experiment, patient investigation, and careful deduction. By stripping the science of medicine of those erroneous opinions which the ignorance of former ages had introduced into it, he was the better enabled to avail himself of whatever was of intrinsic value among the labours of his predecessors. "The connection and dependence both of the facts which had been observed, and the conclusions which were legitimately deduced from their comparison, were now" as Mr. Cabanis†

* *Hippocr. de aere, aquis et locis.*

† *Coup d'Œil sur les Révolutions, et sur la Réforme de la Médecine.* Par P. J. G. Cabanis, 8vo. Paris, 1804.

judiciously remarks, "perceived with a degree of evidence which had been till then unknown. All the discoveries were not yet made, but from that moment enquirers began to take the only path which could conduct to them: from that moment, could they have escaped the errors of delusion, they would have possessed infallible means of estimating with precision the new ideas which time was destined to develop: and, had the disciples of Hippocrates fully comprehended his instructions, they might have laid the foundation of that analytical philosophy, by the aid of which the human mind will henceforward be enabled to create for itself, as it were daily, new and improved methods of advancement."

His followers, however, either failed in comprehending the spirit of his instructions, or abandoned themselves to the delusions of vanity, when, deviating from the straight and easy path so ably and so clearly pointed out by their illustrious preceptor, and no longer contenting themselves with the patient and interesting investigation of the operations of Nature, they expended their time and bewildered their understandings in the fabrication of puerile and fantastic theories, to perplex her simplest phenomena; and, in place of studying the valuable works of the master, whom they affected to revere, in a spirit of candour and sincerity, they unblushingly falsified his text, the better to adapt it to their own deceptive and erroneous views. The result of this dishonest and unpardonable conduct on the part of the pupils has been to detract much from the

authority of the master, and render it difficult to discriminate between the original and the interpolations—the gold of the teacher and the dross of the scholar.

In those works which have been handed down to us as those of Hippocrates, and which are believed to be the least corrupted from their original purity, he ascribes all the phenomena of life and health to the operations of a fundamental principle, which he denominates Nature; which he conceives to be of itself sufficient for the preservation of every animal, performing whatever is necessary for them without the aid of instruction. This principle acts, according to Hippocrates, by attracting what is good, and rejecting what is bad; thus forming the foundation of the doctrine of depuration, concoction, and crisis, upon which he and his followers insisted so much.

He has written ably and at length on the subject of diet, his selection of which was singularly careful, and extremely judicious, making it the principal fulcrum of his practice. He assigns various causes for disease, as the humours of the body, especially the blood and the bile; errors of diet and vitiations of the air, however, he regards as the most frequent. He distinguishes disorders into four separate stages, namely, their beginning, increase, height, and decline: where the termination is fatal it usually occurs in the decline: the most considerable change is in the third stage, determining the fate of the patient, and in general constituting the crisis. This proceeds from an effort of nature to restore the humours to

their natural state, and this is effected by concoction: the time required for which varies with circumstances. Where, however, the duration of the complaint exceeds sixty days, he considers the case as chronic. His chief merit, however, consisted in his patient industry in watching, and his accuracy in recording, the most minute circumstances of disease, and describing every accident which preceded or accompanied the attack; as well as every thing which tended to alleviate its violence, or aggravate its malignancy: not only carefully distinguishing the concomitant symptoms of each complaint, but accurately noting those which preceded the attack, so as to be able both to predict the nature of the coming malady, and to anticipate the time and manner of its termination. Such indeed was his success in this department of practice, that it became the chief basis of his extraordinary reputation, and fully justified the observation of Celsus, that succeeding physicians, notwithstanding their improvements in the treatment of disease, were indebted to Hippocrates for the whole of their knowledge of signs.

His judgment in disease was founded on the looks, the posture, the excrementitious discharges, as the urine, feces, expectoration, and sweat; and on the pulse of the patient. The means which he employed for the preservation of health and the cure of disease were chiefly diet and regimen; it being one of his leading maxims that we should never overload the stomach, nor neglect exercise: at the same time, however, giving a

due caution against unnecessary precision. Le Clerc is inclined to suspect that the books on exercise, which are commonly ascribed to Hippocrates, are really the production of a different writer, Herodicus, the introducer of gymnastic exercises, as has been already noticed near the close of the last chapter: and of whom Hippocrates himself relates that he killed several of his patients by compelling them to walk when labouring under fevers, and other inflammatory complaints.

As a means of preserving health, Hippocrates recommended the use of emetics once or twice a month, during the seasons of Winter and Spring. These he administered to persons of a vigorous constitution in the morning with an empty stomach.

Among his aphorisms for the cure of disease are the following: that contraries, or opposites, are remedies for each other; thus evacuation is the remedy for repletion, and repletion for depletion. Physic consists in supplying what is deficient, or taking away what is redundant; in doing either of which the utmost caution is requisite, to avoid doing either suddenly; every thing which is in excess being repugnant to nature. When we do any thing according to reason, though the success is not answerable, we should not too easily or too hastily alter our plan, so long as the reasons for pursuing it continue unaltered. We should, however, carefully observe what gives ease, and what creates pain; what is easily borne, and what cannot be endured.

We should do nothing rashly, but often pause for observation ; since, in this way, we at least do no harm.

Diet, as has been already observed, was one of the most efficient weapons wielded by Hippocrates in his combats with disease, and was that part of his system on which he chiefly prided himself, as being in a peculiar manner his own invention. In acute disorders, in fevers especially, he preferred the exhibition of liquids to that of solids ; and was particularly partial to the use of ptisana, which he allowed to be taken twice a day by those who were accustomed, when in health, to take that number of meals—since he disapproved of the sick eating oftener than those in health. During the paroxysm of fever, he prohibited food altogether ; as well as in all complaints accompanied with exacerbations, during the continuance of the paroxysm. Young persons he indulged more in eating than those who were older ; always, however, bearing in mind the previous habits of the patient. He did not, however, approve of the rigid and indiscriminate system of abstinence with which the practitioners of his day were in the habit of assailing every complaint ; for, this practice, he observed, weakened the patient too much at the commencement, and rendered the subsequent exhibition of food, at an improper stage, indispensable. With respect to drinks, he was unfriendly to the use of plain water, substituting for it various cooling and acidulated beverages, and not absolutely forbidding wine, even in fevers and other acute disorders, when delirium

and pains in the head were not present. In complaints of a chronic nature he made great use of milk and whey.

Bathing was among his favourite remedies in a variety of cases : but he appears to have employed it rather by affusion than immersion. In the use of the Bath he gives a due caution to avoid catching cold, prohibits bathing immediately after eating or drinking, and these last immediately after bathing. He also directs a minute attention to the previous habits of the patient. We should not bathe, he says, either when the body is too open, or, on the other hand, when it is too costive, or when nausea, loss of appetite, or a disposition to bleeding from the nose, prevails. To those who have been accustomed to it in health, he allows of bathing twice every day. In chronic cases he approved much of exercise ; though he thought it in general ill adapted to acute disorders : he did not, however, even in these cases, recommend a constant confinement to bed ; observing, on the contrary, that we must sometimes push the timid out of bed, and rouse up the lazy.

When diet and exercise proved insufficient for the conquest of disease, he had recourse to remedies of a more active character ; among which purging was one of the first. His theory of the effects of purgation partook of the general complexion of the age, since he imagined that Medicines of this class operated, by means of some peculiar attraction, on the peccant humours, and discharged them from the body. The purgatives

he employed were of the roughest description, usually operating both ways: indeed the ancients appear to have had little, if any, acquaintance with those eccoprotics, for the introduction of which we are wholly indebted to the Arabians, at a considerably later period. In the exhibition of these drastic remedies, Hippocrates was extremely cautious; never exhibiting them during the dog-days, nor to pregnant women, in whom they would almost infallibly have produced abortion, and but seldom to the very aged, or to infants. His principal rule in purging was only to remove those humours which are concocted, not those which are crude; being particularly careful to avoid it in the beginning of a disorder, or between the first and fourth days. Conceiving purgatives to operate by some peculiar attraction for the humours, he concluded that each humour had its appropriate and specific purgative which acted upon it alone; and hence he judged of the efficacy of the purgative in drawing off the proper humour, by the feelings of the patient after its operation.

His use of emetics in the prevention of disease has been already noticed: in sickness he sometimes also employed them in the same manner, simply for the purpose of cleansing the primæ viæ. But when he wanted to recall the humours, as he termed it, from the inmost recesses of the body, he exhibited those of a more active description, such as the White Hellebore, which he gave principally to insane and melancholy patients.

Phlebotomy was a method of depletion to which he frequently had recourse, not merely with a view to simple evacuation, but also, according to his theory, to recall the blood when taking a wrong course, and to procure a free motion of the blood and spirits. In complaints seated above the liver, he took blood from the arm, but in those situated below the liver, he opened the veins of the foot, ankle, or ham. If a diarrhoea prevailed, he checked it before he ordered the bleeding. He sometimes carried bleeding to a great extent even in chronic diseases; of which he gives an instance in the case of a young man, who complained of a great pain in his belly, attended with a rumbling noise while his stomach was empty, but ceasing when it was full; his food, however, did him no good, and he became daily more and more emaciated: none of the remedies prescribed had benefitted him; at length venesection was tried, first in one arm, then in the other, till he had scarcely any more blood left in his body; by which means he was perfectly cured. He also bled in dropsy, and enlargements of the spleen, carrying the evacuation to a great extent, and sometimes even to syncope. The veins he principally opened were those of the arms, the hands, the forehead, back of the head, behind the ears, under the breasts, the ankles, and the hams. Occasionally also he employed cupping and scarifying.

When purging and bleeding failed to afford the relief expected, he called in the aid of diaphoretics and diuretics: and, in addition to those

which produce a sensible effect, he employed others whose operation was insensible, and which he termed specifics; the use of which he had learned from his predecessors, without thoroughly understanding the manner in which they produced their effect.

Among his external applications fomentations were the chief. He also frequently employed fumigations, especially in the complaints of females; and gargles in the *Cynanche tonsillaris*, or Quinsy. He made considerable use also of oils and ointments, cataplasms, and collyria, or washes for the eye. Such were his principal remedies.

He is said to have been the first author whose works have reached us that has treated the subject of anatomy with any thing like the precision of science. Some indeed have carried their admiration of him so far as to imagine that the anatomical remarks interspersed in his writings are sufficient in themselves to constitute a complete system of anatomy; and his perfect acquaintance with the bones of the human frame is said to have been fully evinced by the brazen model of a skeleton which he hung up, as we learn from Pausanias, in the temple of the Delphian Apollo, as a testimonial of his diligence and skill in this department of the profession, as well as for the instruction of posterity. It has been imagined also, from the fourth book, treating of the Heart, which has been interpolated among his works by some of his later transcribers, that he bestowed the name of Aorta on the great Artery which,

rising amid the flesh of the heart from its left ventricle, and afterwards descending along the course of the spine, distributes the blood, through the medium of the various lesser arteries, to every part of the body: but this merit, as we learn from Galen*, belongs, not to Hippocrates, but to Aristotle, who lived above a century later. From this fact it is clear that the book in question cannot be the genuine production of Hippocrates.

Whether Hippocrates extended his dissections beyond the limits of comparative anatomy is a question which has been much contested, and to the negative of which the best informed writers seem disposed to incline: indeed, had he really dissected human bodies, it is by no means probable that he would have fallen into the error, in which he has been followed by Aristotle, of confounding the nerves with the tendons and ligaments; nor is it at all likely that, if he had been the skilful anatomist Galen labours to prove him, the information which we may presume he communicated to his pupils on so essential a part of medical education could have been so effectually lost that Diocles, Praxagoras, and others, who lived more than a century later, should have been such unskilful anatomists as to call for the direct censure of Galen. Diocles, indeed, is believed by many to have lived almost immediately after the time of Hippocrates, and to have been the contemporary of Plato, and consequently

* *De venarum et arteriarum dissectione.*

must have seen and conversed with some of his immediate descendants, whom we cannot suppose to have been ignorant of his anatomical, any more than of his medical, precepts: while Praxagoras was a lineal descendant of *Æsculapius*, and as such must, as some pretend, have been instructed in anatomy from infancy. It appears therefore extremely doubtful whether Hippocrates ever really dissected a human body, and whether his acquaintance with the structure of the human frame, imperfect as it was, did not rest on shrewd analogical conjecture, rather than on actual observation. Had the works of Hippocrates descended to us uncontaminated by interpolations, we might have been led, from various passages they contain, to suspect that he had some crude notions respecting the circulation of the blood—that brilliant and important discovery which it was reserved for the genius of our countryman Harvey to accomplish, and the seventeenth century to witness. With all his defects, however, Hippocrates was indisputably the most surprising man of his age, and his opinions upon many points retain their full authority even among ourselves. His valuable life was prolonged considerably beyond the ordinary duration: he died at *Larissa*, a town of *Thessaly*, about 361 years before the birth of Christ, at the advanced age of 101 years.

Contemporary with Hippocrates, and a zealous prosecutor of anatomical research, was *Democritus*, an inhabitant of *Abdera*, whose excessive fondness for this study subjected him, among his

ignorant fellow-townsmen, to the imputation of insanity; and Hippocrates, who was sent for to visit him, found him deeply engaged in the dissection of animals, with a view to discover the cause of disease, which he imagined to proceed from the bile. Hippocrates, on finding him thus occupied, far from confirming the groundless fears of the Abderans, reported to his employers, not only that Democritus was in the full possession of his senses, but that, so far from being mad, he was the wisest of men. From this anecdote, however, it is sufficiently evident that the study pursued by Democritus was nothing more than comparative anatomy, from which physicians were accustomed, in those days, to reason by analogy respecting the structure of man. Diogenes Laertius has preserved the title of a work which he ascribes to Democritus, and which appears to have treated of his favourite pursuit, anatomy, being a treatise on the nature of man; we shall presently, however, see cause to mistrust the soundness of this conjecture.

Hippocrates left two sons, Thessalus and Draco, who, with Polybus, his son-in-law, were the true founders of the Dogmatic school, falsely attributed to their father, and the authors of many works which have descended to us in his name. Aristotle acquaints us that a work, bearing a title similar to that already spoken of as preserved by Diogenes Laertius, was compiled, in part at least, by Polybus, and was regarded by Galen as the joint production of a number of writers, or rather a collection of the fragments of different authors,

among whom it is by no means improbable that Democritus may have been one. In this work, we are told, all the fundamental doctrines of the Dogmatic school were contained. This school, applying, or rather misapplying, the mystical speculations of the Platonic philosophy to the study of medicine, adopted this most pernicious principle—that "where observation failed reason might suffice"—thus at once rejecting the leading feature of the system which, under the assiduous cultivation of the patient Hippocrates, produced such brilliant fruits, and deviating from the only path which could conduct them with certainty to truth; in fact, flinging, like heedless mariners, their only compass overboard, and launching on the wide and boundless ocean of hypothesis, without a pilot to guide, or a helm to direct their course. Hence, led astray by the delusions of vanity, the followers of this school neglected, if indeed they did not reject with disdain, the patient observation of nature upon which Hippocrates insisted so much; and deceived themselves into an opinion that they had laid the foundation of an incontrovertible system, while the accumulation of facts slowly collected from experience and observation upon which alone a solid superstructure could be rationally erected, was yet in its earliest infancy, and scanty in the extreme.

Thus, although established by the immediate descendants of the great Hippocrates, and almost in his very day, the school of the Dogmatists adopted for the basis of their medical creed doctrines utterly subversive of the first principles of

that illustrious and successful reformer, who, by bringing every fact to the test of the most rigorous observation, and freeing medicine from the gross absurdities which had so long disfigured and perplexed it, succeeded in extricating it from the chaos of confusion in which he found it involved, and elevating it to its true rank among the higher branches of useful knowledge. There could not therefore be a grosser libel upon his memory than to connect his name with a school so opposed to his principles, or impute to him the foundation of a sect which so openly rejected his precepts, and so widely diverged from that clear and unerring path, first traced and successfully pursued by him.

About this time the Pythagorean system, accompanied by a modification of the Egyptian practice, was introduced by Eudoxus of Cnidos, and his pupil Chrysippus; the latter of whom had an insuperable aversion both to purgatives and venesection, but an immoderate predilection for a vegetable diet, which he recommended upon almost every occasion.

Contemporary with Plato ^{*}, according to some, or about half a century later, under the reign of Antigonus[†], lived Diocles of Carystius[‡], of whom mention has already been incidentally made, as falling under the censure of Galen for his ignorance of anatomy, but who, according to Pliny's

* Before Christ, 370 years.

† Before Christ, 300 years.

‡ A city upon the shores of Eubœa, famous for its marble.

report, was second only to his great predecessor Hippocrates in point of reputation, and appears generally admitted to have been one of the most useful and successful practitioners of his day. He is said to have devoted much of his time and attention to the study of comparative anatomy, and to have corrected many of the errors of his predecessors. Even Galen, who in another part of his works speaks of him as one who had made no great proficiency in anatomical pursuits, informs us in another place that Diocles was the first who wrote a manual on the subject of the dissection of dead bodies; an art which had been confined, before his time, to particular families, and communicated only to the children and pupils of those who possessed the secret. It is somewhat difficult to reconcile these conflicting statements in the same writer otherwise than by supposing that there were two practitioners of the same name and same town, who lived within a short period of each other, one of whom might have been a skilful, and the other an unskilful, anatomist; though it does not satisfactorily appear, even from Galen's statement, that either of them practised human dissection. Diocles is said to have blended, like Eudoxus and Chrysippus, the mystical doctrines of Pythagoras with the practice of medicine, and to have ascribed certain wonderful properties to the number seven, and its various combinations. His invention of a surgical instrument for extracting arrows with greater facility, and less suffering to the patient,

has been commemorated in the name of *Diocleus graphiscus*, which was bestowed upon it by his contemporaries.

Praxagoras of Cos, of whom also mention has been slightly made, and who is supposed by many to have lived nearly at the same time with Diocles, was, according to Galen, one of the lineal descendants of *Æsculapius*. He is said to have been a practitioner of deserved celebrity, and to have distinguished himself, contrary to the assertion of Galen, by his anatomical studies, and by having been the first to point out the distinction between the *arteries* and the *veins*; those vessels which, receiving the blood from the left ventricle of the heart after its re-oxygenation in the lungs, distribute it to every part of the body, and those which re-collect it, after the performance of its allotted functions, and return it through the medium of the *Vena cava* to the right auricle of the heart, whence, entering the right ventricle, it is again propelled through the lungs, in order to refit it for the performance of its office. Among other doctrines taught by Praxagoras was that which refers the origin of fevers to an inflammation of the *Vena cava*, which he distinguished by the name of *Χολη*. He likewise demonstrated the absence of Cotyledons in the human uterus, explained the doctrine of the pulse, and reduced the humoral pathology to a more regular system; from all which it would appear, contrary to the opinion given of him by Galen, that he was no inexpert anatomist, and that he really did dissect human subjects: upon

this latter point, however, we are in want of direct evidence. Unlike Chrysippus, the pupil of Eudoxus, he was a strenuous advocate for bleeding, which he adopted freely in his own practice; and, according to Caelius Aurelianus, he made great use of emetics, which he exhibited to an almost excessive extent in the *Iliae* passion. As a surgeon, too, he was equally bold and skilful, not hesitating, if we believe the same author, to remove the accumulated feces in desperate cases of the *Iliae* passion, by laying open the cavity of the abdomen, and dividing the rectum: an operation which would be regarded as daring even at the present day, in the hands of the most expert operator, and with all the advantages of superior knowledge.

Nearly contemporary with these, was Menecrates of Syracuse, who flourished about 360 years before Christ, and is chiefly memorable for his inordinate vanity, and for the appropriate punishment inflicted upon him by Philip of Macedon. He is reported to have been a physician of no inconsiderable skill, but so vain of his success, that, previous to undertaking their cure, he stipulated with his patients to attend him, in the event of their recovery, wherever he went, each decorated with the attributes of different deities, while he himself, attired in a purple robe, with a golden crown upon his head, and a sceptre in his hand, personated Jupiter in the midst of them. His letter to Philip is too characteristic of the man to be omitted, and almost verifies the observation of Pope that "Great wits

to madness are allied :”— it ran in the following ridiculous strain. “Menecrates Jupiter, to Philip, Greeting. Thou reignest in Macedonia, and I in Medicine. Thou givest death to those who are in good health, I restore life to the sick. Thy Guard is composed of Macedonians ; the Gods themselves constitute mine.” To which arrogant nonsense Philip laconically replied, that he wished him the recovery of his reason ; and, soon after learning that Menecrates was in his vicinity, he invited him and his companions to an entertainment, where, elevated on rich and lofty couches before an altar, covered with the first fruits of the harvest, they were regaled with perfumes and libations, while Philip and his other guests feasted on a substantial repast. Feeling at length the cutting irony of this practical but merited reproof, the crestfallen Menecrates and his companions took their leave.

About the same period, or in the fourth century before Christ, flourished Aristotle, the illustrious preceptor of Alexander the great, who, stimulated by the zeal, and aided by the almost unlimited resources of his mighty pupil, was enabled to prosecute his researches into the arcana of nature with advantages such as rarely fall to the lot of the physician or the sage ; but of which he appears to have but imperfectly availed himself. Not only had he a pecuniary grant from the munificence of his princely scholar, to an extent of no less than £155,000 of our money, placed at his absolute disposal for defraying the expence of his

researches, but many thousands of men awaited his orders in almost every part of the then known world, for the purpose of collecting and transmitting to him whatever was prodigious in nature, or curious in art. With all these enormous advantages, however—advantages unprecedented in ancient or modern times—the proficiency he made in the several branches of knowledge, in the study of anatomy especially, was equally unworthy of his genius and his resources; and the erroneous opinions which he has left behind him on some points of comparative anatomy by no means difficult to decide, might almost lead us either to mistrust the veracity of the historians as to the liberality of Alexander, or to suspect that his princely bounty was most egregiously misapplied by the philosopher. Among other most unaccountable errors committed by Aristotle in the department of comparative anatomy, we find the inconceivably paradoxical opinion, that the bones of Lions were destitute of marrow, and their necks, as well as those of Wolves, devoid of flexibility: two points which he could have found little difficulty in clearing up, had he been disposed to give himself the trouble. In human anatomy he appears to have confounded the functions of the arteries and the veins, which last, and not the former, he imagined to receive the blood from the heart for distribution through the system; while he most heterodoxically denied the return of any blood to the heart, which, upon this strange supposition, must have been a self-supplying and inexhaustible fountain. He

gave, as has been already remarked, when speaking of Hippocrates, the name of *Aorta** to the great artery of the body, which, originating in the left ventricle of the heart, carries the blood, after its re-oxygenation in the lungs, for re-distribution throughout the body; but he so far mistook the nature and function of the *Vena cava*, which pours the returned blood into the right auricle, as to attribute to it the same functions as he had already ascribed to the Aorta: no vessels being, according to his inexplicable theory, necessary to replenish the heart.

Aristotle, like his predecessor Hippocrates, confounded the nerves with the tendons and ligaments; and, in place of tracing them to their true origin in the brain, imagined that they proceeded from the heart; to which indeed he has ascribed many of the nobler functions of the brain; maintaining that this last was nothing but a mass of earth and water, void of blood and destitute of sensation, whose only office was to balance and correct the heat of the heart. The Liver, Spleen, and Kidneys, served, as he imagined, chiefly to support and fix the veins in their proper places. Equally remote from truth was his theory of digestion; but his ideas respecting the uses of the Mesentery approached more nearly to fact. His knowledge of the internal structure of the human frame was derived, however, as he himself seems to admit, solely from the dissection of beasts, for he says distinctly that he had no actual

* *Αστήρ*.

knowledge of the internal parts of the human body, of which he could only judge from their supposed resemblance to those of animals somewhat corresponding in form. In his history of animals, he mentions a singular fact, that the human spittle is an enemy to the bites of most serpents* : and in corroboration of this, Nicander asserts that serpents fly from the smell of it†.

Theophrastus, one of Aristotle's pupils, and his successor in his school, also contributed much to the improvement of the science of medicine, in the botanical part especially; of which science he was in fact the founder. Two only of his works have reached down to our times, his History of Plants and his Moral Characters. In the former of these he informs us that Thrasyas, a physician of celebrity, had invented a composition prepared with the juice of hemlock and the poppy mixed together, a small dose of which was sufficient to produce death, without occasioning the slightest pain‡. He also observes, when speaking of Aconite§, that "the ordering of this poison varied, according as it was designed to kill in two or three months, or in a year." He does not, however, vouch for the correctness of this statement.

Zeno and Epicurus, how foreign soever their beautiful systems of ethics may appear from the study of medicine, may nevertheless be justly

* Aristot. *Histor. Animalium*. Lib. viii. c. 29.

† *Πολλὰναι αὐτὸν ἀπὸ τοῦ σπυγνοῦς ἀπὸ τοῦ σπυγνοῦς ἀπὸ τοῦ σπυγνοῦς*. *Theriac*. v. 86.

‡ *Historia Plantarum*, Lib. ix. c. 17.

§ *Ib.* c. 16.

ranked among the promoters of medical improvement, not only from the additional impulse which they gave to the general pursuit after knowledge, but also from the eagerness with which their tenets were laid hold of by the Empirical School, in opposition to the Dogmatists, who adopted the opinions of the Stoics.

On the death of Alexander the great, in the 323d year before Christ, in the division of his empire which took place on that event, Egypt fell to the lot of Ptolemy Soter, or Ptolemy the son of Lagus, as he is otherwise called, who, from having been Governor, became King of that Province, and appears to have had the same enthusiastic attachment to letters as his master. This illustrious Prince, feeling the full importance of literature, promoted it in all its various branches to the utmost of his power, encouraging men of science from all parts of the world to settle at Alexandria, and form themselves into an Academy or learned society, called the Museum, for the use of which, about the year 304 before Christ, he founded that splendid library, whose memory still survives, and which Livy enthusiastically terms "*Elegantiae regum curæque egregium opus.*" Ptolemy was himself a man of no mean erudition, and composed, as Arrian acquaints us, a life of Alexander. He not only held out the most liberal encouragement to men of learning to visit his dominions, but also induced the merchants of Greece and Syria to make Alexandria a principal mart for their commerce; and thus effectually succeeded in rendering this city what its illustrious founder designed it

to be, at once the grand emporium of letters and commerce, and the favoured abode of the Muses. The establishment of this library, which swelled rapidly, through the noble exertions and princely munificence, not only of Ptolemy Soter, but also of his successors Ptolemy Philadelphus, and Ptolemy Evergetes*, to upwards of seven hundred thousand volumes, contributed, along with the establishment of medical schools and hospitals, to give an enormously increased stimulus to learning of every description, and in a more especial manner to the study of medicine. The natural result of this noble liberality on the part of the Ptolemies was, not only that Alexandria far outstripped every other place in commercial wealth

* Of the zeal of this prince in promoting the cultivation of letters some opinion may be formed from the circumstance of his presenting the Athenians with no less than fifteen talents, or £3000 sterling, along with a beautifully executed transcript of the works of Æschylus, Euripides, and Sophocles, in exchange for the originals, which he retained for his own library. The library founded by Ptolemy Soter and termed the Bruchion, from the quarter of the city in which it stood, having increased to 400,000 volumes, a second library, as a supplementary one, was erected in the Serapeum, under the name of the daughter library, and its collection soon reached to 300,000 volumes, making, with the Bruchion, a total collection of 700,000 volumes, in the two Royal Libraries. During Julius Cæsar's attack on Alexandria, the Bruchion was accidentally destroyed by fire, but the remaining library in the Serapeum was enriched by Cleopatra with 200,000 volumes of the Pergamæan Library, presented to her by Marc Anthony, and, with the aid of liberal donations from other quarters, soon exceeded even the amount of the original collection before the loss of the Bruchion. Of the real or reputed destruction of this splendid collection of literary treasures, and its effects upon learning in general, under the Caliph Omar, there will be occasion to speak again when considering the state of medical literature under the Arabs.

and literary reputation, but that the school of medicine established there soon eclipsed every other in the number of its pupils and the celebrity of its professors, and produced a rapid succession of the most eminent physicians, among whom Herophilus and Erasistratus claim our especial notice on account of their important contributions to Anatomical science.

Of these, Herophilus is generally believed to have been a native of Carthage, and to have been born during the reign of Ptolemy Soter. He is said by some to have been a pupil of Praxagoras, who has been already spoken of, and, along with Erasistratus, was accused, by Tertullian*, of having dissected living subjects. His charge indeed is couched in the plainest and least equivocal terms, saying that "Herophilus, that physician, or rather butcher, who dissected six hundred men, in order to find out nature; who hated man, in order to learn the structure of his frame; could not, by these means, come to a more perfect knowledge of his internal structure, since death produces a great change in all the parts, so as to render their appearance after death different from what it was before; especially, since they did not die a natural death, but expired amidst all the agonies to which the curiosity of the anatomist was pleased to subject them."

* Tertullian was a native of Carthage, and one of the most learned fathers of the early Christian Church; he flourished in the second century, or about 195 years after the Birth of Christ, and consequently about 300 years later than Herophilus. Hence his testimony, uncorroborated by that of others, does not merit implicit confidence.

Notwithstanding the high authority of the person who brings forward this grave and weighty accusation; and notwithstanding the acknowledged rudeness of the age in which he lived—before the mild spirit of Christianity had softened the original hardness of the human heart, and taught us the golden maxim of doing as we would be done by—we should not give an unhesitating assent to such a charge coming even from the venerable and learned Tertullian; who, although a fellow-townsmen of Herophilus, and a pious father of the primitive Church, lived at a period too remote from the time of Herophilus to know any thing of him otherwise than from vague and traditionary report, never to be implicitly relied upon, and which, could it have been traced up, with any thing like precision, to an authentic source, would, in all human probability, have been found to amount to nothing more than the plain unvarnished fact of his having been the first to dissect human subjects, openly at least, and thus to outrage those idle and even mischievous prejudices which a blind and ignorant superstition first called into existence, and which neither length of time nor the diffusion of knowledge has been able wholly to eradicate even in our own days. Exaggeration is a propensity inherent in the human heart, and a love of the marvellous one of its most besetting weaknesses. Hence it was that the introduction of warm baths subjected Medea to the preposterous charge of boiling her patients alive; and, in the earlier ages of Christianity, even the simple virtues and

enduring patience of the primitive martyrs did not exempt them from the most cruel suspicions and the most unnatural accusations.

The novelty and the daring of Herophilus's attempt, no doubt, impressed the minds of his less enlightened contemporaries, and his ignorant fellow-townsmen, with a strong and durable impression of horror, (augmented not improbably by the machinations of the priests, who were always foremost to check the spread of knowledge, that weapon of power, beyond the limits of their own body), and handed down to succeeding generations with becoming amplifications, and all those tragical embellishments, which delight while they terrify the nursery, and which serve to keep rebellious children in order, while the man of maturer judgment receives them with the necessary caution of discretion, and the philosopher rejects them altogether with angry disdain.

That Herophilus, notwithstanding Tertullian's imputation against his humanity, was an able physician and a learned man, we have the testimony of Galen himself for asserting; for Galen, who lived* above half a century nearer to the period in which he flourished than Tertullian, and was in consequence much more likely to be correctly informed upon the subject, is not only totally silent respecting the charge of inhumanity, but expressly declares that "he was an accomplished man in all the branches of physic; excelling

* About 137 years after Christ. Tertullian flourished about 195 years after Christ, or about 56 years later.

particularly in anatomy, which he learned, *not from the dissection of beasts alone, as physicians usually do, but principally from that of men**." We also learn, from the same authority†, that both Herophilus and Erasistratus prosecuted their anatomical researches chiefly at Alexandria, and most probably under the immediate auspices of the Ptolemies: whence it appears but reasonable to conclude, that Galen's information must have been at least as good, and as deserving of our confidence, as Tertullian's, and that, had there been a shadow of foundation for the calumny, it could not possibly have escaped the knowledge of Galen, who was not so unqualified an admirer of these distinguished Anatomists as to have left it, as he has done, wholly unnoticed.

The discovery of the true nerves, which, as we have seen, were unknown both to Hippocrates and to Aristotle, is ascribed, with much apparent plausibility, to Herophilus, who arranged them, according to Rufus of Ephesus, in three divisions, the first consisting of those real nerves, which, originating in the substance of the Cerebrum, the Cerebellum, or the Spinal marrow, are the organs of motion and sensation throughout the system, and which he accordingly termed αἰσθητικὰ καὶ προαισθητικὰ νεῦρα ‡, those which communicated sensation and obeyed the commands of the will, and could

* Gal. de dissectione Vulvæ. Cap. v.

† Id. Administrat. Anatom. Lib. vii. Cap. 5.

‡ Nerva sensationis et voluntatis Nerves of sensation and volition.

be traced either to the encephalon itself, or to the spinal marrow, which is but a continuation of it. What he arranged as nerves, in the phraseology of his day, under the two remaining divisions, were evidently nothing more than the tendons and ligaments, and not the real nerves. He particularly described the Optic nerves, or as he termed them the *optic pores*, which had, he maintained, a perceptible cavity not observable in any of the other nerves. He looked upon the Brain as the seat of the soul, which resided in one of its ventricles. The cavity of the fourth ventricle of the brain he compared to that of a pen: and distinguished by the name of *Apertis* the point at which all the sinusses of the *dura mater*, or outer membrane of the brain, unite. He also first distinguished the two coats* of the eye by the names of the *Tunica Retina*, and the *Tunica Arachnoides*. He also made a number of other highly important anatomical discoveries; and, such was his authority in these matters, that almost all the parts which he discovered and named, retain to this day the several denominations which he gave them. Such indeed was the veneration in which Herophilus

* The coats of the eye appear to be really three in number, the *Sclerotic*, which gives it strength, and is so named from its hardness; the *Choroid* or vascular coat, which is interposed between the former and the third coat or *Retina*, and has its internal surface coated with a black pigment, which, by absorbing the redundant rays of light, prevents indistinct vision, and thirdly the *Retina*, which being, however, merely the fine expansion of the optic nerve, and in fact itself the organ of vision, cannot strictly be regarded as a proper coat of the eye.

was held by Fallopius, one of the first anatomists of the fifteenth century, that he laid it down as an incontrovertible maxim, that it was as unreasonable to contradict him on a question of Anatomy, as to contradict the Gospel. Herophilus appears to have been the first who gave any thing like a rational explanation of the doctrine of the pulse, with which Hippocrates had but an imperfect acquaintance, although, as Galen represents it, he fell into many difficulties on the subject. He noticed, under the name of palsy of the heart, a complaint of rare occurrence in his day, which occasioned sudden death, and was the same perhaps with the *Angina pectoris* of modern writers. His medical practice is said to have been far from simple, and he has been accused of administering medicines with an almost needless profusion. His works, however, being lost, we can found our judgment of his merits only upon the imperfect fragments which have been preserved.

Erasistratus is supposed to have been a contemporary with Herophilus, and to have flourished in the reign of Seleucus*, about 300 years before Christ, and is admitted by all but Galen, whose inordinate veneration for Hippocrates too often leads him to be unjust to the merits of others, to have been an anatomist of the first skill, and a practitioner of the first reputation. Like his contemporary Herophilus, he prosecuted his anatomical studies at Alexandria, under the

* Seleucus, like Ptolemy Soter, had been one of Alexander's captains, and on the division of the empire seized upon Syria for his share, and erected it into a kingdom.

auspices of the Ptolemies, and, like him too, his memory has been stigmatized with the charge of dissecting living subjects; a charge as little entitled to credit in his case as we have seen it to be in that of Herophilus. He distinguished the nerves, as Rufus of Ephesus informs us, into two sorts, those which are the organs of sensation, and those which are the organs of motion; the former of which he maintained, according to Galen, to be hollow, and to spring from the membranes of the brain, while the latter he imagined to proceed from the Brain and Cerebellum. On more minute examination*, however, he became convinced that both proceeded equally from the Brain. He also described with considerable accuracy the valves which guard the several orifices of the heart. Yet, notwithstanding his skill in Anatomy, and his great experience in dissection, he laboured, in common with others of his age, under the popular delusion which prevailed respecting the functions of the arteries, and believed them, in their natural state, to be filled only with air. This error, remarkable in a person of his high physiological attainments, originated solely in his ignorance of the circulation; for, as Galen informs us, he could not comprehend why there should be two distinct sets of vessels for the conveyance of the same fluid: in order to reconcile, therefore, what appeared to him so great an absurdity, he maintained that the great vein, (*vena cava*) was the

* De Hippocrat. Platon. Decret. Lib. vii. Cap. 3.

great reservoir of the blood, while the Aorta was the recipient of the spirits; and that, notwithstanding the proximity of the mouths of the veins and arteries to each other, the blood, during the continuance of health, did not enter the vessels in which the spirits flow; but, when this arrangement happens to be disturbed by any violence, that the blood forces its way into the arteries, and occasions more or less disorder of the system. The only use which he assigned to the process of respiration was to supply the arteries with air. His notions respecting the nature of digestion, and the passage of the chyle, were hardly less singular. His account of the appearances of the Brain, Cerebellum, and Nerves, upon dissection, is too interesting, and too clear an exposition of the manner in which he treats his subject, to be omitted here.

“ We examined what the nature of the human brain was; and we found it divided into two parts, as it is in all other animals. Each had a ventricle or cavity of a longitudinal form. These ventricles had a communication with each other, and terminated in a common opening, according to the contiguity of their parts, reaching afterwards to the Cerebellum*, where there was also

* The *Encephalon*, or contents of the cavity of the skull, is divided into two distinct portions; the Brain properly so called, which occupies the anterior portion of the cavity, and gives origin to all those nerves which minister to our senses, as those of sight, hearing, &c. This portion appears, on this and other accounts, to be peculiarly the seat of the soul, or at least the seat of reason—it is separated from the remain-

a small cavity; but each part was separated from the other, and shut up in its proper membranes; and the Cerebellum in particular was wrapped up by itself, as well as the Brain, which, by its various windings and turnings, resembled the *Intestinum jejunum*. The Cerebellum was in like manner folded and twisted different ways, so that it was easy to know, by seeing it, that, as in the legs of swift-running animals, as the Deer, the Hare, and some others, we observe the tendons and muscles well calculated for that purpose; so in Man, who has a larger share of understanding than other animals, this great variety and multiplicity of foldings in the Brain was undoubtedly designed for some particular end. Besides, we observed all the apophyses, or productions of the Nerves which come from the brain; so that, to state all at once, *the Brain is visibly the principle of every thing that passes in the body*; for the sense

ing portion which, in man, is by far the smallest by a strong membrane or diaphragm, perforated with a sufficient orifice for the maintenance of the necessary connexion between the two—called by anatomists the *Foramen Cerebelli*, stretching horizontally over the cerebellum, and sustaining the posterior lobes of the cerebrum. This lower portion, denominated the *Cerebellum*, or little Brain, from its inferior bulk, gives origin to the Spinal marrow, and those nerves which produce mere animal sensation: it appears to be in a more especial manner the seat of vitality: the slightest injury of this or its continuation, the spinal marrow, being instantly and irretrievably fatal. A due proportion of bulk between these two portions seems essential to the just enjoyment of the rational powers and animal vigour, and hence we may understand how the projecting forehead and large sinuosity give indications of superior understanding, by affording a larger space for the development of the Cerebrum.

of *smelling* proceeds from the nostrils being pierced, in order to have communication with the nerves: the *sense of hearing* is also produced by the like communication of the nerves with the ears: the tongue and the eyes receive also the productions of the nerves of the Brain."

From this passage it is sufficiently evident, not only that he had studied the anatomy of the brain with considerable care, but had formed a tolerably correct idea of its function and importance: he does not, however, appear to have suspected the slightest distinction of function between the Cerebrum and the Cerebellum, or attached any importance to the difference in the relative proportions between these two portions of the encephalon, as observed in man and the inferior orders of animals. In his medical practice, Erasistratus, if we are to believe Galen, wholly banished the use of the lancet; but we are informed by others that, without absolutely interdicting it, he was much more sparing of bleeding than other practitioners; for which he alleged the following reasons: the difficulty of success from not being always able to see the vein which requires to be opened; the danger of opening an artery by mistake; the difficulty of ascertaining the precise quantity of blood which should be taken; and the inutility of venesection to relieve inflammation of the arteries, occasioned, as he imagined, by a coagulation of the venous blood in their orifices. His dislike of bleeding extended also to purgatives, for which

he substituted emetics and enemata*, which last, he said, should be mild in quality, and sparing in quantity; totally rejecting the copious and irritating enemata in general use. Disapproving in this manner both these methods of evacuation, he recommended in their room abstinence and exercise. He entertained a high opinion of the value of Succory† in diseases of the liver and other viscera of the lower belly; and gave the most minute directions for its preparation. His practice was, upon the whole, diametrically the reverse of that of his contemporary Herophilus; and he trusted for the cure of disease chiefly to diet and regimen, aided occasionally by topical applications—equally reprobating complex prescriptions and fanciful hypotheses. In the practice of surgery he appears, in some instances at least, to have been a bold and successful operator; not hesitating, in cases of hepatic tumour, to make an incision at once through the skin and integuments into the cavity of the abdomen, and apply his remedies directly to the part affected. Yet, notwithstanding his courageous method of proceeding in cases of hepatic disease, he wholly disapproved of tapping in dropsy, from an idea that the liver, being in an inflamed and schirrous state, would be more pressed upon and injured by the adjoining parts after the water was drawn off, and the operation in consequence

* Enemata—injections—clysters—from *iniquo*, immitto, injicio—to inject or throw up.

† Cichorium Intybus.

more likely to cause the death of the patient. He likewise objected to the extraction of teeth when much force was required.

Such is a brief outline of the principal discoveries, opinions, and practice, of this distinguished physician, whom Galen, in his blind and almost superstitious attachment to the memory of Hippocrates, and his almost illiberal intolerance of every one who appeared to rival his fame and contest the palm of victory with him, labours with the utmost assiduity to decry, and, where all-powerful truth compels him reluctantly to admit the merit of his discoveries, endeavours to lessen the sum of its amount by dividing it with others. The charge brought against him in common with Herophilus, by Tertullian, of dissecting men alive, which has been already discussed in a former part of this chapter, is repeated by Celsus, who says that they both "dissected living criminals condemned to death, and dragged from their prisons for that very purpose." Celsus indeed, living in the first century of the Christian era, was more likely to receive a correct account of this fact than Tertullian, who flourished so much later; yet, as the charge is to be found in these two writers only, and is wholly unnoticed by Galen, who wrote in the intermediate period, and was too jealous of their fame to be very scrupulous about availing himself of any report wearing the semblance of truth which tended to detract from it, we may fairly conclude that he gave no credit to the rumour, and are

ourselves fully justified, by his example, in discrediting it.

The practice of Physic became about this period, as Celsus informs us, for the first time, divided into the three distinct branches of Medicine, Surgery, and Pharmacy; each of which was pursued as a separate and independent profession; though hitherto it had been the custom for the same individual to exercise the whole three; or, when a division of practice occasionally took place, it only amounted to the separation of Medicine from Surgery and Pharmacy: the former falling to the lot of the *Ἀρχιτροὶ καὶ*, who appear to have resembled the physicians of modern times in merely giving advice, while the *Ἀναισθητικοὶ* combined in their practice the various operations of Surgery and the manipulations of Pharmacy.

Another important change took place in the medical world about 271 years before the commencement of the Christian æra, in the regular organization of the Empirics as a distinct sect, which was accomplished by the exertions of Serapion of Alexandria. This sect indeed dates its origin from a period far more remote; but their rivals, the Dogmatists, hitherto completely eclipsed them: now however, marshalled by their leader, Serapion, they exhibited a more compact front, and produced champions, who boldly and publicly advocated their cause. From what we are able to collect of the practice of Serapion, the remedies he employed were the same with those in use among his predecessors, but exhibited

without the slightest regard to the reasonings by which they were accustomed to account for their operation. From the report made of him by Galen, he appears to have been an arrogant, self-sufficient, empty, and overbearing pretender, who used Hippocrates extremely ill in his writings: that he did so is far from improbable, although, for reasons already given, the testimony of Galen must be received with due caution, wherever the reputation of Hippocrates is, in the smallest degree, concerned. The works of Serapion, together with those of the other writers of the sect of the Empirics, having been lost, we are left in ignorance of the arguments employed by them in support of their tenets, nor would the little which has reached us of their opinions have survived to our days, had it not been for the labours of their opponents, who cited passages from their works merely for the sake of replying to and refuting them.

The sect of Empirics derived their name from their leading dogma, which admitted experience, the *ἔμπειρία* of the Greeks, to be the only source of medical skill. This *Experience*, which was, according to their definition, knowledge derived from the evidence of sense, might be either fortuitous, when resulting from personal observation, which they called *ἴσχυσις*, or acquired by design, from the study of cases recorded by others. The knowledge of a disease was to be obtained by a comparison of its symptoms with those of others already described; and the manner of treating a new

complaint, or one whose symptoms differed from those already upon record, was to be collected from a careful observation of such symptoms as they exhibited in common with those which were already known. Observation, in their opinion, should be directed to the following distinct objects, the determination of what is salutary, what noxious, and what indifferent, and that concurrence of symptoms which constituted any particular complaint.

While the attention of the Empirics was thus devoted to the investigation of symptoms, their rivals, the Dogmatists, more rationally insisted upon the importance of inquiring into, and determining the causes from which those symptoms arose; an inquiry which necessarily presupposes an acquaintance with the internal structure and functions of the several parts of the human frame. For it must be admitted that, while the cause remains concealed, the effect cannot be removed with any thing like certainty: and that he who would attempt to cure a tubercular ulceration of the lungs merely by the exhibition of opiates to allay the most urgent symptoms, would not only lose his labour, but, by thus administering fresh excitement to the system, eventually also lose his patient. The rationally empiric mode of proceeding in such a case, and the only one which could be expected to lead to a successful issue, would be first to ascertain what was the latent or remote cause of the disease, which is the formation of tubercles; next, to determine the exciting or proximate cause, which is the suc-

cessive inflammation of these tubercles; and lastly, having determined these essential preliminaries, to consider the natural indications of cure, the rational plan of restoring the diseased parts to a healthy state of action, and the safest method of alleviating the most urgent and distressing symptoms without interfering with the general indications of cure. Such a course of proceeding, however consonant with the soundest dictates of philosophy, and the plainest suggestions of reason, exhibits little in common with the practice or the theories of either the Empirics or the Dogmatists: the latter of whom, instead of investigating the latent causes of disease in the manner just pointed out, sought for them in those imaginary changes among the elementary principles of our bodies, which constituted, in their opinion, the difference between health and disease. The cure of disease depends most undoubtedly, as the Dogmatists contended, upon a due acquaintance with its cause; but they erred, to the full as much as their opponents, in passing over those causes which are the legitimate objects of investigation, and giving themselves up to unprofitable and unintelligible speculations respecting the ultimate arrangements of matter, which are placed far beyond the narrow grasp of human controul, and mock the utmost stretch of human judgment: while the Empirics likewise erred in limiting their inquiries to an investigation of symptoms apart from the causes which produce them, and skimming the surface, while the latent source of disease continued

to rage beneath, with unabated, if not with aggravated, violence. Such were the chief features of distinction between these sects, which once occupied so conspicuous a place in the History of Medicine. Yet, notwithstanding the discrepancy observable in doctrine between the two rival factions, and notwithstanding the acrimony which embittered the partizans of both sides, their practice in general differed by no means so widely as we might have been led to expect: for we find many, enrolled among the ranks of the Empirics, who adopted the Dogmatic method of investigating the latent cause as the only rational basis for the cure of disease; and many, on the other hand, among the ranks of the Dogmatists, who, however they might indulge in the hallucinations of theory, did not neglect the more sober practice of careful observation, and took experience, in fact, for their guide with as scrupulous a devotion as the most bigotted follower of the self-sufficient and vain-glorious Serapion.

Heraclides of Tarentum, a reputed adherent of the Empirical school, was particularly assiduous in inquiring into the remote causes of disease, and his practice in Phrenitis, Cynanche, Cholera, Tetanus, and various other dangerous maladies, appears, from what we find recorded of it in the works of Cœlius Aurelianus, to have been singularly judicious. His contributions to the *Materia Medica* of his day were copious and important; and his *Treatise on Pharmacy* derived an additional value from the circumstance of its being founded upon the result of his own per-

sonal observation. His skill in surgery has also been spoken of in the most favourable terms, and altogether his merits were such as to obtain for him from Cælius Aurelianus the title of "the Prince of Empirica," and even to extort commendation from Galen, who was in general sparing of his praise to any but his idol Hippocrates.

After the death of Heracleides a considerable change took place in the pharmaceutical department of medicine; and the researches of medical men became directed chiefly to the discovery of remedies calculated to counteract the deleterious effects of poisons. This was principally occasioned by the attention bestowed on the subject by the kings of Pergamus and Pontus; the latter of whom invented the celebrated antidote which bears his name, but whose real efficacy has never yet been established by direct experiment; although we are informed by History that Mithridates had so effectually fortified himself, by its use, against the influence of poison, that when he afterwards became weary of life and desirous of shortening his days by poison, he was unable to succeed in his attempt. Yet, notwithstanding this grave assertion, persons were not wanting, even among the ancients*, who, notwithstanding

* Serenus, who was far from deficient in credulity, appears to have been somewhat sceptical respecting the efficacy of this famous confection, at least if we may judge from the following lines which appear to record his sentiments upon the subject:

*"Antidotus vero multis Mithridatica fertur
Conseruata modis, sed Magnus serena regis*

the general credulity of the age, questioned the veracity of the statement, and doubted the vaunted powers of this royal composition.

Nicander, of Colophon, (a town of Asia Minor,) who flourished in the time of Attalus, King of Pergamus, about 135 years before Christ, enjoyed a high reputation, not only for his skill in physic, but for his general attainments in grammar and poetry. His *Θεσπικα* and *Αλεξίφαρμακα* are the only works of his which have survived the wreck of time, and reached down to our days; they are written in what the author seems to have designed for poetry, but which displays less of the inspiration of Helicon, than of an acquaintance with Natural History.

Damocrates, who flourished about the same period, introduced into practice a variety of the most complex prescriptions, which have been distinguished by the name of their inventor; and among others the Mithridatium, or Damocratic Confection, a formula for the preparation of which may be found in the *Pharmacopœia* of the Royal

*Cum caperet victor, vilem deprehendit in illis
Synthesum, et vulgata satis medicamenta risit."*

Cap. ix.

Which may perhaps be paraphrased thus—

With care profound, and skill the most refin'd,
Of spices, opiates, sweets, and gums combin'd,
The Mithridate to virtues high had claim,
To pow'r celestial, and a regal name.
But when at length victorious Death demands
Each high-priz'd secret at the Monarch's hands,
How will he laugh, the compound strange to scan,
Which claim'd to give such monstrous pow'r to man!

College of Physicians as late as the year 1746—exhibiting a strange sarrago of the most heterogeneous ingredients, to the number of not less than forty-four*; though even this yields, in point of number, to the Theriaca Andromachit of the same Pharmacopœia, which occupies nearly three quarto pages, and exhibits a list of sixty-one distinct component parts. Of a nature somewhat similar to these, was the celebrated anodyne invented about this time by Herennius Philo, a native of Tarsus, (the metropolis of Cilicia, and named after him Philonium,) consisting, as we are told, of opium, euphorbium, and various aromatics, formed into a confection. In the Pharmacopœia already mentioned, a somewhat similar preparation is given under the name of Philonium, the formula of which, not being very long, is given below in the note, as a curious specimen of the contents of our Pharmacopœia not a century ago‡.

* Pharmacopœia Collegii Regalis Medicorum Londinensis. 4to. Londini, 1746—p. 126.

† Ib. p. 128.

‡ PHILONIUM LONDINENSE.

R Piperis albi,

Zingiberis,

Semini carui, singulorum ꝑ. uncias duas,

Opii colati ꝑ. drachmas sex,

Syrupi e meconio ad mellis spissitudinem cocti,

tripulum unum pondus.

Opium vino solutum syrupo calfacto curiose

unisce: tum adde cætera in pulverem reducta.

Ib. p. 128.

Having thus taken a rapid survey of the writers and practice of medicine among the Greeks, the state of medical science among the Romans demands our notice, and will oblige us to retrace our steps for a short period, in order to mark its gradual rise and progress among a people who from the greatest insignificance attained to the most enormous power, and have for ages past sunk again into their primitive obscurity.

For the first five hundred years of their existence as an independent people, the Romans appear to have lived without the aid of medicine or the skill of the physician. During that long period the original stamina of the early founders of that city, (destined in time to become mistress of the world, and even yet wielding a shadowy sceptre over human opinion, long after the substance has been wrested from her grasp,) continued to resist the encroachments of luxury, and the assaults of vice, neither needing nor demanding the succours of art, or the motley compounds of the pharmacopolist. A few simples of questionable energy constituted their entire *Materia Medica*, and the artificial refinements of more luxurious ages were yet unknown. At length, however, in the 464th year from the foundation of their city, or about 187 years before the Christian æra, the invasion of an epidemic, which baffled their skill, and threatened destruction to their population, compelled them to seek other succour than their own defective knowledge supplied; and a deputation of those citizens, whose

muscular frames and sinewy limbs yet withstood the enervating assaults of contagion, was dispatched in quest of advice, to the temple erected in honour of the God of healing by the inhabitants of Epidaurum*. The oracle, as tradition relates, in place of replying, as they expected, to the question proposed, delivered to the deputies one of the sacred serpents, which, soon after the vessel re-entered the Tiber on her return, sprang ashore upon an island just within the mouth of the river, on which the Romans afterwards erected a temple in honour of the mighty Æsculapius, who was worshipped there with the same honours as were paid to him by the inhabitants of Epidaurum. A second temple was soon after erected by the Romans to the Goddess Hygieia†, who was worshipped with rites borrowed from those observed by the Egyptians in the temples of Isis and Osiris. Not content, however, with the protection of these Grecian divinities, whom their newly awakened fears had led them to summon in aid of their impotent efforts to combat the assaults of disease; or, jealous perhaps for the honour of the immortal city, the Romans began before long to swell the catalogue of their medical divinities with names of genuine home manufacture, and to rear temples and altars to deities unheard of beyond those walls which

* A city of Agria in Peloponnesus (now the Morea), famous & celebrated for its breed of horses as well as its temple of Æsculapius.

† A daughter of Æsculapius, worshipped by the Greeks as the Goddess of Health.

claimed Romulus for their founder. Of this description was the Goddess Febris, an inscription to whose honour upon a votive tablet has been preserved by the care of Tomasini*.

They also canonized a Goddess Ossipaga, who presided over the growth of the bones; a Goddess Carna, to whose care the viscera fell, and to whom offerings of bean broth and bacon were made, as being among the most nutritious articles of human diet; and the Goddess Mephitis, worshipped at Cremona, and spoken of by Tacitus. Such was the heterogeneous collection of medical divinities, whom the lively imaginations or superstitious fears of the Romans called into fictitious existence, and to whose unsubstantial guardianship they were content to confide their health.

Medicine, in the earlier periods of the Roman History, and as late possibly as the time of the Emperors, appears to have been practised chiefly, if not exclusively, by Slaves and Freedmen, upon whom the title of Medici, or Physicians, was indiscriminately conferred, in the same manner as the *Iatraliptæ* of the Greeks were not unfrequently dignified with the appellation of *Iatros*. The importance of their services, both to individuals and to the state, gradually, however, raised them to their due rank and estimation in society, and

* This inscription runs as follows:

FEBRI DIVÆ FEBRI
SANCTÆ FEBRI MAGNÆ
CAMILLA AMITA PRO
FILIO MALE AFFECTO

Græv. Thes. Rom. Antiq. vol. xii. p. 567.

obtained for them, in a multitude of instances, the honours of citizenship, and the grant of peculiar privileges and immunities. The first surgeon who voluntarily established himself at Rome in the exercise of his profession, appears to have been a Greek, from his name Archagathus; and not only did the Senate confer upon him, as Pliny informs us, the freedom of the City, but even purchased a shop and surgery for him in the Acilian Causeway. The cruelty of his operations, however, which surpassed the comprehension of the Romans, at length brought him into disrepute, and occasioned his banishment from the city.

A practitioner of the name of Menecrates, who flourished about the time of Tiberius, and was the author, according to an inscription preserved by Montfaucon, of 155 different works, none of which have survived to our days, is said to have been the first inventor of the *Diachylon* or *Lead Plaister*, which, outliving the numerous productions of his pen, is still one of the most useful auxiliaries in surgical practice.

The next practitioner of note whom we find recorded in the Roman Annals, is Asclepiades, a native of Prusa in Bythinia, who, after he had completed his studies at Alexandria and at Athens, the two most distinguished seats of learning in those days, came to Rome, in the 65th year of the city*, and established himself there as a teacher of Rhetoric; but, finding this occupation,

* About 96 years before Christ.

after a time, either too laborious, or not sufficiently lucrative, he abandoned it for the practice of medicine; and, being blessed with a front of the most imperturbable brass, an imposing address, and considerable natural abilities, soon succeeded in attracting notice, and accumulating wealth. Like all who have followed him in the ranks of Charlatanry, he affected to decry the labours of his predecessors and contemporaries, and to give out that he alone possessed the true secret of the art of healing; "*omnia abdicavit; totamque medicinam, ad causam revocando, conjecturam fecit,*" says Celsus. He ridiculed Hippocrates for his patient observation of nature, and nicknamed his system *Σαυατὸς μελέτη*, a meditation on death: he also laughed at the principle termed nature by Hippocrates, and the imaginary faculties with which he endowed her; while he was still more amused, if possible, by the doctrine of attraction, totally denying its existence, even in the palpable instance of iron and the loadstone; the phenomena of which he pretended to explain on the supposition of a concourse of corpuscles, with a peculiar modification of their pores. Nature he denied to be any thing but matter and motion; and hence inferred that Hippocrates did not understand his own meaning, when he spoke of her as an intelligent being, and ascribed to her various qualities.

Upon equally rational grounds he disputed the Hippocratic doctrine of crises, asserting that matter and motion were of themselves fully sufficient to explain all the phenomena of disease.

We deceived ourselves, he said, in supposing that nature always did good, since, on the contrary, she frequently did a great deal of harm. As for critical days*, finding that the crisis of fevers sometimes occurred upon the 6th or 8th day, without any regularity, he rejected the whole doctrine as vain; denying that the changes in disease took place on one day rather than another; maintaining even that the crisis never was the result of any spontaneous operation of Nature, but resulted wholly from the skill of the physician, who, in place of trusting to the imaginary aid of Nature for the solution of disease, should direct his efforts to the attainment of that object by the exercise of his professional knowledge. He concluded his critique upon the opinions and practice of Hippocrates and his followers, as well as upon the whole body of ancient practitioners in a mass, by saying that the object of their attendance upon their patients was merely to watch the manner of their death, and not to effect their cure: and that they made the pretext of observing the operations of nature a mere blind to conceal their own ignorance, an idle excuse for suffering the sick to die without an effort for their recovery.

But it was not sufficient for the vanity of Asclepiades merely to overturn the dogmata of his predecessors, without endeavouring to erect upon

* Cels. Lib. iii. cap. 4. On this subject even Celsus remarks, that the Pythagorean doctrine of numbers led the ancients into error.

their ruins a superstructure of his own. Taking therefore for its basis the atomic philosophy of Democritus and Epicurus, he attempted to explain the various functions of the body, and all the phenomena of health and disease, by the doctrine of atoms and pores, *δύκται, καὶ πόροι*. Anatomy, the careful study of which might in some degree have served at least to modify his more erroneous opinions, and lead him to conclusions less at variance with truth and common sense, he not only totally neglected, but even affected to despise. Matter, considered in itself, he maintained to be unalterable; and that all bodies, distinguishable by our senses, consisted of an infinity of minuter particles, so diminutive as to elude detection, and separated from each other by spaces utterly void. Even the soul itself consisted, according to him, of these minute corpuscles. The *πόροι* or pores were occasioned by the peculiar disposition of the *δύκται* or corpuscles, and varied in size and shape according to the difference of their figures. Thus, all bodies have pores; and some of those belonging to the human frame are peculiar to it, and contain other minute bodies which pass and re-pass by pores communicating with each other; the size of these moveable molecules varying with that of the pores through which they are to pass: the largest constituting the blood, and the smallest forming the animal spirits or heat. Hence he inferred that the duration of health, or the natural state of the body, depended upon the degree of freedom with which these molecules traverse their respective pores; while disease, on the contrary, arose either from their obstruction, or from their

too rapid passage through the pores in consequence of relaxation. Fevers, inflammations, and disorders of this nature, he accounted for upon the hypothesis of obstruction; while he imputed Syncope, Languor, Dropsy, and such like complaints, to a preternatural relaxation of the pores. Dropsy, in particular, he imagined to proceed from an infinity of small holes in the flesh, which converted all the food received into them to water: the precise manner in which this miraculous hydrogenation, or transmutation to water, takes place, he prudently leaves unexplained. Hunger, and more particularly that enormous appetite which the ancients termed *Boulyxia*, he ascribed to the opening of the larger, and thirst to the dilatation of the smaller, pores of the stomach and belly.

Such was the puerile theory of this daring charlatan, whose practice was in strict accordance with the wildness of his doctrines. In a work which he left behind him as the record of his opinions, he reduces the common remedies in disease chiefly to friction, gestation, and the use of wine; adapting his remedies to the imaginary causes to which he ascribed the disease. Thus, in those complaints which he referred to obstruction, he proposed by means of various kinds of exercise to relax the pores, and facilitate the free transmission of the interrupted *lyxoi* or molecules; and accordingly prescribed gestation from the commencement even in the most ardent fevers, however rapid the circulation, and however intense the heat of the surface; laying this

extraordinary paradox down as an established maxim, that one fever was to be cured by another, and that the strength of the patient was to be reduced by watching, and by the endurance of thirst: which last he enforced so rigorously that, however great their craving, he would not suffer his patients to touch so much as a single drop of water during the first two days. But, although thus severe at the commencement, he became, according to Celsus, much more indulgent in the latter stages of illness. With a view to open the pores, he had frequent recourse to frictions, especially in Dropsy, and in inflammatory affections of the brain, for the purpose of inducing sleep. In fevers, after their violence was somewhat abated, and even in cases of phrenitis^o, he not only permitted, but enjoined the use of wine, carried even to the extent of intoxication, under the idea of its producing sleep, which he deemed essential to persons labouring under cerebral inflammation. He also employed wine in cases of lethargy, with the diametrically opposite view of rousing and stimulating the patient. To these various methods of proceeding he added a most severe system of abstinence; withholding, as we learn from Celsus, all aliment whatever from his patients during the first days of the attack, but indulging them in the moderate use of food upon the fourth day. This practice he modified, however, according to the peculiar circumstances of the patient; as we learn

^o Inflammation of the brain.

from Caelius Aurelianus, who acquaints us that he began to allow the use of food as soon as the first violence of the paroxysm abated, without waiting for a perfect remission.

However Asclepiades may have flattered himself that he conducted his practice upon the principle of *cito, certe, et jucunde*, quick, sure, and pleasantly, it may be reasonably questioned how far his patients gave him implicit credit for the latter; while few who are acquainted with the first principles of pathology can give him unqualified credit for the intermediate one, except perhaps in cases of the most trivial attacks; as for the first recommendation, of dispatch, it can well be believed that the free, and by no means judicious, use of wine, together with the preposterous severity of treatment to which he appears to have had recourse, must in general have gained him full credit for dispatch, since, if they did not succeed in dispatching the complaint, they could hardly fail to dispatch the patient in the most expeditious manner possible.

Asclepiades, nevertheless, appears to have been far from deficient in talent for observation: since his description of diseases, and their division into acute and chronic, evinces much accuracy of discrimination, and much acuteness of perception. He was no friend either to emetics or cathartics, for the latter of which he usually substituted enemata. He was not averse from bleeding, although his chief reliance was placed upon diet, regimen, frictions, and gestations. Among his favourite prescriptions was the use of cold water

internally, as well as externally : and Sprengel believes him to have been the first contriver of the *Balneu pensilis*, or Shower Bath. He appears, however, to have been indebted for his great popularity among the Romans, chiefly to the free use of wine, which he prescribed where others withheld it.

Upon the leading principles of the system of Asclepiades, his pupil Themison, a native of Laodicea, founded the basis of the Methodic Sect, discarding, like his master, the study of remote causes ; the Hippocratic doctrine of critical days ; and other opinions current among the practitioners of his day, as needless and superfluous ; contending that a general acquaintance with the constituent principles of disease, and a due regard to those circumstances which are common to most complaints, were all that was required in a physician. He arranged complaints under two or, at most, three general classes ; the first comprising such as proceed from stricture ; the second, those which arise from relaxation ; and the last those which assume a mixed character. He also retained the division into chronic and acute, which Asclepiades has been said to have first established ; the treatment in each of which was different. The science of medicine consisted, he said, wholly in the observance of a small number of rules, founded upon matters which are altogether evident. All complaints, of whatever nature, climate, country, or constitution ; however varying in symptoms, or differing in violence, if falling under one or

other of his three great divisions, should, he said, be treated indiscriminately according to the method laid down for disorders of that division. According to his definition, the science of Medicine consisted in a knowledge of what diseases have in common with each other. His practice corresponded with that of his preceptor and model, Asclepiades—first weakening his patient by irrational abstinence pushed to an injurious extreme, and afterwards exhibiting stimulants with an equal want of judgment, in order to repair the mischief he had done. Like other pretenders of his class, he seems to have enjoyed considerable reputation among the people; yet, from the manner in which he is spoken of by Juvenal*, he appears to have been held in but small reputation by persons of sense, and his practice unmarked by that brilliancy of success which his arrogant pretensions might have led us to expect. He was far from young when he founded the Methodic sect, and did not live to see it arrive at perfection: this was a gratification reserved for his successors, Soranus and Thessalus.

A simplification both of the theory and the practice of medicine appears to have been the great object proposed for attainment by the sect of Methodists thus founded by Themison. Equally dissatisfied with the Dogmatic doctrine of occult

* Quot Themison agros autumno occiderat uno.

Sat. 10 v. 221

How many sick in one short autumn fell,
Let Themison, their ruthless slayer, tell

causes, and the Empiric method of trusting to an investigation of symptoms alone, they endeavoured to take an intermediate course, and assumed, as the basis of their theory, certain conditions of the system which they supposed to be common to all diseases; forgetting, as Sprengel very justly remarks, that these very conditions are often more obscure even than the occult causes of the Dogmatists. On their first establishment, they referred all complaints indiscriminately to one or other of the two morbid conditions of *constriction* and *relaxation*; which terms they applied, not, as the moderns do, to particular organs, but to the body at large. In every case, therefore, it was only necessary to ascertain which of these morbid conditions existed, in order to understand the appropriate remedy. They found, however, in time, that a multitude of complaints existed which could not be referred to either of these two divisions; and to remedy this defect they were obliged to establish a third common condition, or third class, under the denomination of a *mixed state*, designed to include all those disorders which they were unable to class under either of the former heads. What precise ideas they connected with this *mixed* or third state, it would be as needless, as it would be uninteresting and uninstructional, at present to enquire; since, as Mr. Cabanis judiciously remarks, after devoting more space to the discussion than has been deemed necessary or desirable here, the "*mixed species* of the Metho-

dic sect, by comprehending *every thing*, became in fact applicable to nothing."

Yet, with all the absurdities of their doctrines, the Methodists were not without their use to society, since their establishment compelled the physicians of the other sects to pay a closer attention than hitherto to the study of the several indications of disease. Had the Methodists, however, confined themselves to an accurate investigation of the morbid conditions of the system, as indicated by the symptoms, without rashly attempting to simplify pathology in the manner they adopted, they would have conferred an infinitely greater obligation upon the world, and the science of medicine would have been far more deeply indebted to their labours. Their practice also participated in the defects of their doctrines, and was equally injudicious, from their wholly overlooking those efforts of nature which they ought to have seconded with the utmost assiduity, in place of paying attention to those alone which accorded with their own peculiar opinions.

Notwithstanding the sovereign contempt in which they affected to hold the Hippocratic doctrine of critical days, they were not inattentive to particular periods in different diseases, which served to guide them not only in their judgment as to the period of their duration, but also in their method of cure. Their treatment of *Chronic* was, in some degree, the converse of that which they pursued in *Acute* complaints; having recourse to what they termed *perasurgions*, or a *change of constitution*; the professed object of which was to

restore the due relation between the *όγκοι* and the *ποροι*, the *molecules* and the *pores*: for this purpose the patient was prepared by the *ἀναληψις* or restorative system, commencing with an invigorating plan of diet and regimen, and afterwards exhibiting active remedies for the purpose of subduing the original complaint.

Themison was succeeded, in the reign of the Emperor Nero, during the first century of the Christian æra, by Thessalus, a native of Trallis, a town of Asia Minor, a man of manners corresponding with the meanness of his origin, and audacity and presumption which, while they equalled his ignorance, were unparallelled among any of his predecessors. This man, who to the above qualities united the most preposterous vanity, arrogated to himself the ridiculous title of *ιατρονικης*, or the Vanquisher of the Physicians, a title which he even had the assurance to have inscribed upon his tomb, which was erected by the side of the Appian way. No mountebank, as Pliny informs us, ever attracted more crowded audiences or gaping admirers than this impudent pretender, who professed to make his pupils proficient in the whole science of medicine in the space of six months: by this means he obtained a multitude of scholars, chiefly, however, from the lowest ranks of society, whom he took with him on his visits to his patients, for the space of time specified; at the expiration of which he conferred upon them the full privilege of commencing practice on their own account. Both Galen and Pliny represent his insolence

and vanity as intolerable, and report that he was in the habit of ridiculing and despising all the regular physicians. He was followed, whenever he made his appearance in the streets, by greater crowds than any German Quack Doctor; but of the success of his practice few if any records have been handed down to our times.

The reign of the Emperor Trajan appears to have been singularly favourable to the progress of Medicine in all its branches; and was distinguished for the labours of a number of medical writers and practitioners of the first ability and distinction. Among these, Soranus and Cælius Aurelianus pre-eminently demand our attention; both of them belonging to the school of the Methodists, which they contributed to improve by their skill, and embellish by their labours.

Soranus, a native of Ephesus, after having completed his studies at Alexandria, that great mart of knowledge, established himself in practice at Rome, and, being untainted by the idle prejudices which disgraced his predecessors, attended closely to the study of Anatomy; he wrote a book on the female organs of generation, which is yet extant, and displays an intimate and minute acquaintance with his subject. His sagacity and judgment are fully evinced in his observations on disease. He has also left us a life of Hippocrates, containing much curious and valuable information respecting that great father of Medicine, who was, as he acquaints us, enrolled by the Athenians among the number of their citi-

zens, honoured by them with a crown of gold, and had a provision allotted for himself and his posterity in the Prytaneum; an honour accounted the greatest which could be conferred in Greece. Soranus also furnishes us with negative evidence in contradiction of the story current respecting Hippocrates having arrested the progress of the plague at Athens by means of fire; an error propagated even by Galen, who said that Hippocrates cured a plague which had been introduced into Greece from Æthiopia by purifying the air with fires, into which were thrown sweet-scented herbs and flowers, along with other perfumes: while Soranus merely observes, in general terms, that Hippocrates predicted the pestilence, and took the necessary measures of precaution to secure the cities of Greece from infection.

For the account we possess of the doctrines and practice of Soranus we are indebted to the labours of his contemporary, Coelius Aurelianus, who has transmitted to us one of the best medical works which have descended from the ancients; one which, notwithstanding some deficiency of polish in its style, and inaccuracies in its grammar, is richly entitled to consideration, both on account of the accurate descriptions of disease, and the satisfactory details of the various methods of treatment then in use, which it contains. Of all the ancients, who have treated of that dreadful malady, Hydrophobia, none has written so largely, or described the symptoms so fully, as Coelius Aure-

lianus*, who has collected together all he could find on the subject in the works of the Greek Physicians, and especially Soranus: and has, notwithstanding the censure passed by Dr. Mead†, upon his "obscure bad latin," explained all the symptoms of this fearful malady "with great pains and exactness;" and has particularly noticed, among other symptoms, the priapism which attended the complaint throughout the whole of its violence. In his book on Chronic disorders, he speaks of the efficacy of music as a remedy in Sciatica, and calls this practice "*decantare loca dolentia*," to charm away the pain, which he farther explains, by saying, "the pain is mitigated and discussed by the tremblings and palpitations of the heart‡." He also mentions its use in Epilepsy, and adds that the first introduction of this kind of treatment was ascribed to Pythagoras§. A prejudice in favour of the power of music over various disorders of the body has been a prevailing feature of almost every age, and seems to be strongly countenanced by some remarkable cases. Its efficacy in the cure of the bite of the Tarantula is too well attested to admit of our doubting the fact, however we may dissent from the ordinary man-

* Cæl. Aurel. de morbis acutis, Lib. iii.

† The Medical Works of Richard Mead, M.D. 8vo. Dublin 1767. Essay iii. Of the Mad Dog, page 58.

‡ Cæl. Aurel. de morbis chronicis Lib. v. cap. 1. *Quum cum saltum aumerent palpitando, discussio dolore, mitescerent.*

§ Cæl. Aurel. in loco citato.

ner in which it is accounted for; there can be few who have not occasionally witnessed the effect of melody even upon the dullest and least tractable of the brute part of the creation: and a singular case is recorded by Dr. Mead, of a dog whom a fiddler actually killed by the continued repetition of a particular note, which affected the animal to such a degree that it fell at length into violent convulsions, terminating from a continuance of the exciting cause in death*.

Considerable improvements were also made during this reign in the practice of Surgery, especially by Heliodorus and Antyllus. The former of these was an eminent Surgeon at Rome, several of whose practical observations on diseases of the bones, and injuries of the head, have been preserved by Nicetas, and show that he had made no inconsiderable proficiency in his profession.

Antyllus, however, another surgeon of this period, the contemporary of Heliodorus, has perhaps a still higher claim to our notice, from being the first writer who has given us a description of the method of extracting the Cataract: an operation which he advises us to perform while the Cataract is small, from an apprehension that, when enlarged, it could not be extracted without bringing away the humours of the eye along with it†. He recommends the operation of Bronchotomy‡, in dangerous cases of

* Mead. l. c. p. 55.

† Rhazes Continent. Lib. ii. Cap. 3.

‡ Making an opening through the throat into the Larynx, or windpipe, between its rings.

Cynanche, in which the violence of the inflammation and degree of the tumefaction threatened suffocation. He operated by incision in cases of humoral Hernia: and has given very minute directions to guide the young practitioner in the selection of veins for bleeding.

Leonidas, of Alexandria, of whose surgical practice some particulars have been preserved by Aetius, also seems to have been a bold and skilful operator, whose method of proceeding in cases of Fistula does not appear to have differed materially from the practice recommended by our countryman, Pott. Cancer of the breast he removed by amputation and the actual cautery: his remarks upon Hydrocele, Glandular swellings, Inflammation of the scrotum, Hernia, and ulcers and warts of the pudenda, evince much judgment.

Anatomy, although neglected in general by the Methodists, with the almost solitary exception of Soranus, was much cultivated by practitioners of the other sects, during the first century, and received considerable additions from various quarters.

Rufus, a native of Ephesus, who flourished towards the close of this century and commencement of the next, under the Emperors Nerva and Trajan*, and is spoken of in terms of high commendation by Galen as a skilful physician, devoted much of his time and attention to anatomical studies: his dissections, however, appear

* Between the years 96 and 117 of the Christian era.

to have been confined to comparative anatomy, and his demonstrations to have been made upon the bodies of beasts, from which he reasoned by analogy to the corresponding organs in man. Apes seem to have been the most frequent subjects of his dissecting knife. He traced with success the course of several of the nerves, from their origin in the brain to their distribution throughout the body; and marked the distinction between those of sensation and those of voluntary motion. He exhibited the decussation of the optic nerves at the infundibulum, and described the capsule of the crystalline lens under the name of ὄμην φακοειδής, or the lenticular membrane. He regarded the heart as the seat of life, and the organ of pulsation, and pointed out the difference of structure and capacity between the right and left ventricles. The Spleen he considered as an organ which answered no particular use. He informs us that the recurrent nerves were only just then discovered; and he explains the reason of the term *Carotid*, or *Carotic**, being applied by the ancients to the arteries of the neck, "because they imagined that, when these arteries were strongly compressed, the animal was inclined to sleep, and lost the use of its voice." Rufus was the author of a treatise upon the *Atra Bilis*, or Black Bile, which was supposed by the ancients to produce Melancholy; but neither this, nor several other works of his quoted by Suidas, have reached us; and we only possess some imperfect

* From *καρὸς*, *sopor cum gravedine*—heavy sleep—and that from *καρὰ*, *caput*, the head.

fragments, an edition of which has been given in this country by a gentleman of the name of Clinch.

Anatomy, however, is said to have been still more indebted to the labours of Marinus, whom Galen styled the restorer of the study, and whose works he is stated to have epitomized. Marinus was the author of numerous works, and, among the rest, of a treatise on the anatomy of the muscles, which has been well spoken of; but the whole of these have been unfortunately lost. Galen is believed to have profited considerably by them. Marinus paid great attention to the absorbent system, which he studied with great care, and discovered in the course of his investigations the glands of the Mesentery. He divided the nerves into seven pairs, and gave the first description of the fourth pair or *Nervus Palatinus*; he is also said to have discovered the *par vagum*, which he denominated the sixth pair.

Caius Plinius Secundus, the illustrious Natural Historian of Italy, who was born, it is generally believed, at Verona, and flourished in the time of Vespasian, about the year 72, though not strictly an anatomical writer, merits, nevertheless, notice among the writers of that class, on account of the many curious observations on both human and comparative anatomy which are to be found scattered throughout his works: though unfortunately from his not being accustomed to dissection himself, and from his giving too ready a belief to the statements of others, truth and falsehood are frequently found blended together in

his works—a circumstance tending much to lessen their utility.

Botany, though hardly aspiring at this period, or indeed at any other preceding the immortal labours of the Swedish Sage, to the dignity of a science, was not altogether neglected; and a treatise on this subject and the *Materia Medica*, which was written by Dioscorides of Anazarba, obtained much and deserved celebrity, and continued long in vogue among those who prosecuted these branches of study. Experience has fully confirmed the justice of his remarks upon the efficacy of several valuable remedies furnished by the vegetable kingdom, such as the decoction of Elm Bark in cutaneous affections, and the *Polypodium* as an anthelmintic, or destroyer of worms: while his descriptions of some of the more important drugs merit the highest praise for their accuracy and fidelity. Some of his contemporaries followed in the same track, but with very inferior success.

While the other branches of medical knowledge were advancing with a more tardy, but yet steady pace, the equally important branches of the *Materia Medica* and Pharmacy were far from being overlooked, and many of the preparations which exist at the present day in our *Pharmacopœias* trace their origin to this period.

Among the medical writers of the first century, none ranked more deservedly high than Aurelius Cornelius Celsus*, whose authority has already

* There were three persons of the name of Celsus distinguished for their learning in the annals of Rome: Celsus the *Physician*, who is supposed to have been born at Rome,

been so frequently referred to in the course of the preceding pages; and who has been termed by some the Latin Hippocrates. From the nature of his writings Celsus has generally been supposed to have practised Physic, though he does not himself state the fact in any part of those writings, and some have expressed their doubts on the subject: from evident acquaintance, however, with professional subjects, and, above all, from his work on the human skeleton, in which he describes with equal accuracy and minuteness the form, position, and connection, of every bone in the body, we may not unreasonably conclude that he practised some of the branches of medicine; and it appears, from various passages in his works, that he occasionally, though perhaps rarely, occupied himself with dissections. His medical writings, indeed, are regarded as inferior only to those of Hippocrates, over which they possess at least this one advantage, that they have descended to us free from those

and to have flourished under the Emperors Tiberius, Caligula, Claudius, and Nero, or between the 13th and 55th years of the first century; Celsus the *Lawyer*, who was the contemporary of Plutarch and Ptolemy, about the middle of the second century, or in the time of Adrian and Antoninus Pius; and Celsus the *Philosopher*, who was contemporary with Julius Solinus, and Plutarch, towards the end of the same century. Horace in his Epistles commemorates a fourth Celsus, who preceded all these in the days of Augustus, and may be aptly distinguished by the title of Celsus the *Poet*, of whom Horace says in his Epistle to Florus,

"Quid mihi Celsus agit? monitus multumque monendus,
Privatus ut quærat opes, et tangere vitet
Scripta, Palatinus quæcunque recepti Apolloni."

Lib. i. Ep. iii. ver. 16.

interpolations and corruptions of the text, which detract so much from the authority and utility of the former. Celsus has freely availed himself of the labours of his illustrious predecessor; yet, notwithstanding his just admiration of this great Father of Medicine, he did not scruple to profit by the information contained in the writings of others: and even joined with Asclepiades in laughing at the doctrine of critical days in disease, which he regarded as a relic of the superstitious doctrine of numbers, introduced by Pythagoras from the East. He also dissented from Hippocrates on the subject of bleeding, which he employed more generally, but at the same time more sparingly at each operation, fearing to exhaust the patient too much by a copious evacuation at one time; to avoid which he repeated the operation frequently. He also employed cupping and scarifying oftener, and differed from the Hippocratic doctrine of purgatives. Like the Methodists, towards whose opinions he shews a manifest predilection, he prescribes abstinence during the early stages of disease, leaving the determination of its length and severity to be governed by the circumstances of age, and constitution, the violence of the attack, the nature of the climate, season of the year, &c. In the latter stages he admitted of a generous diet, cautiously regulated, so that the patient should neither overload his stomach, nor yet fill it too suddenly after fasting.

Celsus regarded the pulse as a fallacious and uncertain indication of the state of health or dis-

case ; because its frequency or slowness varied much with the age, sex, and constitution, of the patient ; while a temporary derangement of the organs of digestion may give it an appearance of weakness, at a time when the general health of the system is unimpaired. The pulse may, in the same manner, happen to be weak and languid at the beginning of a fever, deceiving us into an idea of extreme debility, when, in fact, a violent exacerbation of the paroxysm is but just commencing, and the patient retains sufficient strength and vigour, not only to carry him through the paroxysm, but to conduct him to an eventual and complete recovery. The pulse, again, is often quick, full, and strong, from the effects of exercise, exposure to the sun, or other temporarily exciting causes, such as the passions of the mind, &c. It is also affected in general more or less by the arrival of the Physician, and the patient's anxiety to learn his opinion : for which reason the Physician should not examine it upon his first arrival, but, sitting down with a cheerful air, endeavour to tranquillize any agitation he may observe by lively conversation, and guarded enquiries into the state of his patient's health : after which he may, with more confidence, examine the pulsation of the artery. But, if so trivial a cause as the arrival of the Physician is capable of producing so much disorder in the pulse, we may naturally conclude that there are a multitude of other causes which, though they elude our observation, are capable of producing still greater disturbance.

Such is the substance of his remarks upon the Pulse, in which there is much to commend, much to remember, and much to adopt. Celsus, however, was not altogether free from some of the popular prejudices of his day, especially with respect to the supposed origin of disease, which he refers directly to the anger of the Gods*. Speaking of the poison of serpents, however, he appears to have been aware of the innocuous character of the virus when not mixed with the blood; for he recommends extracting it from the wound by sucking, provided the person, who performs the operation, has no wound or ulcer in his mouth: and, in noticing the exhibitions of the *Psylli*, he more distinctly says, "These *Psylli* did not possess any superior skill, but a confidence strengthened by habit: for the venom of serpents, like some hunting poisons chiefly in use among the Gauls, is not injurious when swallowed, but only when infused into a wound. Whoever, therefore, will, like the *Psylli*, suck the poisoned wound, will, without the slightest risk to himself, save the life of the wounded person†."

Celsus seems to have been the first who recommended immersion in water as a cure for

* Cels in *Prefat. de Medic.* "Morbos ad iram deorum immortalum relatos esse, et ab eisdem opem posse solitam."

† "Neque, hercule, scientiam præcipuam habent hi, qui *Psylli* nominantur, sed audaciam usu ipso confirmatam. Nam venenum serpentis, ut quædam etiam venatorum venena, quibus Galli præcipue utuntur, non gustu, sed in vulnere nocet. Ergo quisquis exemplum *Psyllorum* secutus, id vulnus exsuxerit, et ipse tutus erit, et tutum hominem præstabit." *Medic. Lib. v. cap. 27.*

Hydrophobia; but his mode of employing this remedy appears to have been attended with no inconsiderable hazard of drowning to the unfortunate patient, for he says, "the only remedy is to throw him unexpectedly into a fish-pond, and, if he be unable to swim, keep him for some time immersed so as to make him swallow a portion of the water, and then raise him out of it, alternately immersing and emerging him; but, if able to swim, he should be kept in the same manner at times immersed by force, so as to be surfeited with water: by which means both the thirst and the dread of water will be effectually subdued*." The practice thus recommended by Celsus has, with some modification, been successfully adopted in Tetanus and other spasmodic diseases by the late Dr. Currie of Liverpool, but its efficacy in Hydrophobia has by no means realized the expectations of Celsus.

In Epilepsy, he recommends emptying the vessels of the occiput, by cupping and scarifying, and establishing issues, made by the actual cautery, in two places, one upon the occiput, and the other lower down, upon the first vertebra of the neck, so as to produce a copious drain. Indeed, he manifests a considerable partiality for this

* As the passage in the text is not rendered with literal fidelity, it may not be amiss to give the original words of the author here—"Unicum remedium est, nec opinantem in piscinam non ante ei provisam projicere, et si natandi scientiam non habet, modòmersum bibere pati, modò attollere; si habet, interdum deprimere ut invitus quoque aqua satietur sic enim simul et situs, et aquæ metus, tollitur." *Medic. Lib. v. cap. 27.*

method of treatment, which, however cruel it may appear, he recommends upon many occasions : especially in Tympany, in which he directs ulcers to be made in several parts of the belly with a red-hot iron, and kept open for a considerable period ; and in Sciatica, following the advice of Hippocrates, he recommends three or four issues, or eschars, made in the same manner in the hip, and similarly kept discharging : a practice to which perhaps few modern patients could be brought to submit.

Celsus appears to have regarded the disorders of the rich as more difficult of cure in general than those of the poor, on account of their being less amenable to the directions of the physician. Dropsy, he says *, " is more easily cured in the case of Slaves than Free persons : because those who are most easily compelled to submit to the abstinence and other privations necessary for their cure, are more speedily relieved than those to whom their exemption from restraint proves injurious." " Hence," he goes on to observe, " when a pupil of Chrysippus', who was a physician of no mean skill in the service of King Antigonus, was consulted about a friend of that Monarch's, who was noted for intemperance, and laboured under a slight attack of Dropsy, he pronounced his recovery impossible : and, on being informed that Philip of Epirus, another physician, had promised to cure him, he replied, that Philip regarded the disease, while he looked to the

* Cels. Lib. iii. cap. 21. p. 161.

patient." In this complaint he restricted the quantity of drink to that which was indispensable for the maintenance of life, preferring such as possessed diuretic properties*. He also preferred keeping the bowels soluble by diet rather than by purgative medicines†. He likewise pointed out the propriety of attending to the secretion of urine, and comparing the quantity voided in a given time with the quantity of liquid taken in the same space of time, and observed that if the balance be in favour of the urine, a happy termination of the complaint may be hoped for‡.

In his seventh book he acquaints us that the method of breaking the Stone within the bladder, in order to facilitate its extraction, which has been pursued even down almost to our own days, was generally ascribed to a Greek Physician of the name of Ammonius, who obtained from this circumstance the surname of *Λιθοτομος*, or the Lithotomist§.

Such is the hasty view which the narrow limits of a work like the present admit of being taken of the practice and opinions of this most eloquent and instructive of the ancient writers on Medicine; who, in place of servilely copying the sentiments of others, had the courage to think for himself, and even to dissent boldly from the doctrines of his predecessors, where he found them erroneous. His works, which have gone through numberless editions in every possible

* Cels. l. c. p. 162. † Ibid. ‡ Ibid p. 163

§ Cels. Lib. vii. cap. 26

variety of form and size, exhibit a compendium of the practice both of his own and the preceding ages, rather than the result of his personal experience and observation; and embrace every branch of Therapeutics, whether manual, dietetic, or pharmaceutical. Hence, although, as he very justly remarks himself, "*Morbi, non eloquentia sed remediis, curantur**"—diseases yield to medicine rather than to eloquence; whoever wishes to learn the practice of the ancients previously to the days of Galen, as well as all who admire pure latinity and classical elegance in a medical writer, should turn to the fascinating pages of Celsus, and imbibe knowledge from their ample and instructive contents.

Before closing the present chapter, and quitting this period of the History of Medicine, two other sects, the Pneumatic and the Eclectic, which trace their origin to a time a little posterior to the organization of the school of Methodists by Themison, claim a small portion of our attention. Of these the first, or Pneumatic Sect, was founded by Aristæus, a native of Cilicia, who practised as a physician at Rome, about the middle of the first century, and, adopting the system of the Stoics, became the steady and vigorous opponent of the doctrines and practice of Asclepiades, Themison, and their followers. He extended the theory of pre-existent germs; and accounted for the fluctuations of the pulse by referring them to the

* Præfat. Lib. i. p. 10.

exhalation of the *πνεῦμα*, or spirit, from the heart and arteries; from which circumstance the sect derived its name. Aristæus paid considerable attention to many branches of pathology; but his reputation arose chiefly from his inquiries respecting diet, and his investigation of atmospheric influence.

The Eclectic, or Episynthetic sect originated in an attempt made by Agathinus, a pupil of Aristæus, to reconcile the doctrines of his preceptor with those taught by the Empirics and the Methodists; but, although he thus virtually became the founder of the new sect, the merit of raising it into notice, and consolidating its doctrines, belongs rather to Archigenes and Aretæus, who, taking for their basis the leading doctrines of the Pneumatic sect, reduced the theory of its founder to a more scientific form, and enriched it by a number of valuable observations.

Archigenes directed his efforts to reform the language of medicine, but apparently with little success; since he forgot to commence with the reformation of his own style, which was so very obscure as to call for the animadversion of Galen. Many of his practical observations, however, which have been preserved by Galen, possess a considerable share of merit. Too great an attachment to subtleties was his great fault—his talents, nevertheless, were respectable.

The exact time at which the celebrated Aretæus lived is a matter of much uncertainty, and authors are greatly divided in opinion upon the subject: it seems, probable, however, that he

wrote in the interval between the commencement of Nero's and that of Domitian's reign, or between the years 54 and 81. His merits, as an attentive and skilful observer, as well as a chaste and elegant describer of disease, are universally acknowledged, and justly obtained for him the honourable designation of the *Incomparable Aretæus*. So fully was he impressed with a conviction of the indispensable importance of anatomy, not only to the just comprehension of the true causes of disease, but to the rational indications of cure, that he commences almost every chapter with remarks on the structure of the part whose affections form its subject: so that, notwithstanding his general character of a brief and compendious writer, he has treated the subject of anatomy more copiously than any of the ancient physicians. In common with Hippocrates, and Chrysippus the Stoic, he regarded the heart as the principle of life and strength, in which the soul and nature of man reside in a peculiar manner: he also maintained that the heart was the exciting cause or principle of respiration, being seated in the centre of the lungs, which it inspires with a desire for fresh air. The lungs he did not believe to be susceptible of pain, from being composed of a loose sort of substance like wool; rough cartilaginous arteries, according to him, were dispersed throughout them; they were unprovided with muscles, and furnished only with some small and slender nerves, by means of which their motion was produced. He imagined, with Era-

eistratus, that the liver was the source of the veins, and, on this account, little else than a concretion of blood. He conceived the stomach to preside over pleasure and uneasiness; and, from its proximity to the heart, he regarded it as the common source of all the faculties, contributing greatly to the strength, and to the composure, or dejection, of the mind, through its consent with the soul. In common with Erasistratus, he maintained that the nerves were not only the organs of sensation, but likewise the source of all the action and motion of the limbs. Tetanus he looked upon as a disease of the nervous system, which he likewise supposed to be the seat of disease both in Gout and Inflammation of the brain, or Phrenitis. Such are a few of the anatomical opinions of Aretæus, who, like the sect of the Dogmatists, applied them to the explanation of the phenomena of disease, and the basis of a rational system for its treatment: for, pains and disorders being incident to the internal parts of the body, he considered a due acquaintance with these essential to the judicious application of their remedies.

Epilepsy, as Aretæus informs us*, was attributed by many of the ancients to lunar influence entirely; it being supposed that the deity of that planet inflicted it as a punishment upon wicked people for their crimes; whence it was called the *sacred disease*, and viewed with superstitious awe. He recommends, in cases of inveterate headache †,

* De diuturnis morbis lib. i. cap. 4. † Ibid. cap. 2.

opening the two arteries behind the ears, as affording a greater and more speedy relief to the head than opening the temporal arteries. Aretæus has left us an accurate description of the *Cynanche tonsillaris* *, or Quinsy, upon which a learned comment has been written by Severinus, who calls it the Pestilential Quinsy of Children. He regarded Elephantiasis as infectious, saying "that it is not less dangerous to converse and live with persons affected with this complaint than with those infected with the plague; because the contagion is communicated by the inspired air†." He is also the first medical writer who has remarked the influence which the mind exerts over the health of the body ‡, and the re-action of the body upon the mind; a fact, he observes, which we content ourselves with admiring without hoping to be able to detect its cause.

Besides the incomparable Aretæus, medical science is under considerable obligations to Cassius the Iatrosophist, another of the Eclectic sect, who has written many excellent pathological remarks on the diseases of association, and the sympathies of the nervous system.

While the science of Medicine was thus advancing with a rapid yet steady pace in the path of improvement—while the mists of error were successively dispersing before the brilliant torch of truth—and the genius of Christianity was insensibly emancipating the human mind, that divine

* De causis et signis morborum acutorum. Lib. i. cap. 9.

† De causis diuturnorum morborum, et de curationibus eorundem. Lib. ii. cap. 13. ; Ibid cap. 1.

particula aureæ, from the trammels of that gross and sensual superstition which had weighed down its faculties for a period of nearly four thousand years—the illustrious Galen arose, the herald of a brighter day, gifted with the most splendid talents, and the clearest judgment; endowed, as the eloquent Cabanis finely observes*, with a genius sufficiently comprehensive to embrace all the sciences, and cultivate the whole of them with equal success; who, rapidly distancing every competitor, soon divided the admiration of the world with Hippocrates, and became the oracle of Physic.

* Coup d'Œil sur les revolutions et sur la reforme de la Médecine.

CHAPTER III.

Progress of Medicine from the First Century to the Capture of Alexandria by the Saracens—Influence of Christianity in developing the Human Faculties—Account of Galen; his early genius; strong admiration of Hippocrates; Definition of Medicine; Pathological Doctrines; Anatomical Pursuits; Religious Sentiments; Productions, Decline of Medical Science after his Death—Oribasius, a townsman of Galen's; his celebrity, weight in the Empire; reverses: writings; spurious Commentaries upon Hippocrates; fragments of Ancient Writers preserved in his Works; Gymnastic Exercises; Scarification; *Avascularia*; practice in Epilepsy—Nemesius, Bishop of Edessa, erroneously said to have anticipated the Discovery of the Circulation—Ætius, a native of Amida in Mesopotamia, not to be confounded with Ætius, the Arrian, of Antioch; the first who describes the Guinea-worm; introduces the use of Spells and Charms; his Regimen for the Gout—Palladius the Sophist—Alexander of Trallis; confines himself to Describing the Symptoms and Treatment of Diseases; cures Gout by Purgatives, his treatment of Cynanche Parotidea; Bulimia or canine appetite, recommends the Use of Rhubarb; treatment for Worms of the Intestines; Contemporaries, Jacobus Psychrestus; Uranus; and Procopius—History of the Plague of 543—Paulus, a native of Ægina, a copious Writer on Surgery; recommends opening the Jugular Veins in Defluxions of the Eyes; first Inventor of the Scarificator—Theophilus Protospatharius—Stephen

HAVING toiled, in our former chapters, through a long period of more than four thousand years, during the greater part of which we had little beyond the doubtful and often deceptive light of tradition, vague conjecture, or superstitious fiction, to guide our steps; it is with

heartfelt satisfaction that we find ourselves progressively, though tardily, approaching to the confines of that glorious day, whose first dawnings may be distinctly traced as we draw nearer to the grand epoch of our redemption, and whose splendour has gradually expanded with the progressive diffusion of the heavenly light of Christianity throughout the world; but whose meridian splendour, bursting from the thick darkness by which it was eclipsed during the long interval between the fall of the Roman empire and the commencement of the reformation under the auspices of Luther and Calvin, in 1517, has been reserved for these latter days, wherein the human mind, spurning the trammels by which its energies had been too long repressed, emancipated itself from the slavish dominion of a blind and debasing superstition, and the tyranny of a profligate and licentious church. If, on their first introduction to the world, the doctrines of Christianity came accompanied with an almost immediate influx of knowledge, to which the brightest periods of former history are but as the faint glimmer of the glowworm's lamp; the discovery of the important art of printing in 1440, which contributed so powerfully, in conjunction with the labours of those two great Apostles of unadulterated Christianity, Luther and Calvin, to aid the progress of the reformation, by restoring religion to its primitive purity, and overthrowing the last barriers which bigotry had erected to keep the world in darkness, let in a flood of light which casts every thing that preceded it into the darkest

shade, and exhibits man, as his bountiful Creator designed him to appear, superior to every other earthly being in knowledge and power, and second only to the Angels in Heaven.

The illustrious Galen, who deservedly occupies so conspicuous a station among the Fathers of Medicine, was the Son of Nicon the geometrician, and born at Pergamus, a city of Asia, celebrated as the place where parchment was first manufactured. The date of his birth is not known with certainty, but he is generally believed to have flourished under the reigns of Trajan* and the three succeeding Emperors, attaining, it has been said, by extreme care, notwithstanding the natural weakness of his constitution, an age of no less than 140 years. Having made himself master in his youth of all the logic and philosophy which were usually taught in those days, he applied to the study of medicine under Satyro and Pelops, whom he soon outstripped by the rapidity of his attainments. He appears to have first distinguished himself, as a medical writer, under the reign of Adrian, or about the year 130, at which period he attracted considerable notice both as a teacher and practitioner. A strong spirit of rivalry prevailed at this time among the Dogmatists, Empirics, Methodists, and other medical sects spoken of in the pre-

* Trajan succeeded Nerva in the year 98, to which if we add 140, the number of years Galen is reputed to have lived, it will bring us down to the year 238, or 77 years later than the death of Antoninus Pius, the latest of the three Emperors under whom he is said to have flourished.

ceding pages, each of which was supported by numerous and zealous partizans. Owing to a variety of schisms which had taken place among the Dogmatists, and greatly weakened their strength, (some of them following Hippocrates, and others Erasistratus, or Aesclepiades,) the Methodists had been enabled to gain the ascendancy, and held, about this time, the first place in public estimation; while the Empirics, on the contrary, had fallen into that just contempt, which their idle pretensions, their inordinate vanity, and their irrational practice, deserved.

Such was the state of medical science and parties, when this great reformer appeared to purge the healing art of many of those errors which had been incorporated with it since the days of Hippocrates, and had deteriorated its value, as well as of multitudes of absurdities and superstitions which continued to disgrace it. To which of the prevailing sects Galen originally attached himself does not exactly appear; it is conjectured however that he belonged to the sect of Eclectics, who obtained that distinguishing title from their disclaiming all exclusive partiality for one writer rather than another, and professing to select from every author indiscriminately whatever appeared to be most valuable. Galen commenced his medical career with a similar profession of impartiality, which renders it probable that he belonged to that sect; although he was so far from adhering to his original declaration of not following any author in particular, that, within a little time after it was made, he

attached himself almost exclusively to the doctrines of Hippocrates ; and this for the most part with so blind and indiscriminate a partiality, as frequently to lead him into the greatest injustice to the merits of others. Hence it is that although he infinitely surpassed both Hippocrates and Aretæus in point of erudition, as a pathological observer, he fell considerably below the level of either, not so much from any deficiency in his powers, as from his yielding to the delusions of specious although worthless theories.

Galen exhibited from his earliest infancy proofs of the most uncommon capacity ; and began, even while prosecuting his youthful studies, to detect the futility of the prevailing systems : dissatisfied with what his masters taught him as incontrovertible truths and immutable principles, he was filled as it were with a new light on studying the works of Hippocrates ; his admiration of which increased on a comparison with the operations of Nature. Hence, from this time forward, he gave himself up to the exclusive guidance of Nature and Hippocrates ; and took upon himself the labour of commenting upon the writings, and expounding the doctrines, of that illustrious Father. Thus, he revived the Hippocratic system of medicine, not indeed in all the virgin purity of its original state, but tarnished and debased by the worthless dross with which the Dogmatists had too successfully alloyed the precious ore, which time has only increased the difficulty of refining. Indeed, Galen himself does not wholly escape the charge of contributing his

share to the adulteration of the genuine text, since Cahanis expressly declares that, although he communicated to the Hippocratic system a lustre which it did not originally possess, "what it gained in his hands must be allowed to have more the appearance of dress and ornament than of real solid acquisition. The observations which had been collected, and the rules which had been laid down, by Hippocrates, in assuming a more splendid and systematic form, lost much of their original purity; Nature, whom the Coan Physician had always followed with so much accuracy and caution, became obscured, and as it were overwhelmed, beneath the foreign pomp of various sciences and dogmas; and the art of medicine, overloaded as it already was with subtle and superfluous rules, became entangled in new and needless difficulties*."

Such are the sentiments of one who cannot be accused of any want of respect for the memory, or of deficient appreciation of the labours, of this distinguished ornament of the Æsculapian profession; but the fact is that Galen, while professing to restore the doctrines of Hippocrates to their original purity, revived in reality the opinions of the Dogmatists; who, although springing as it were from the very ashes of the Coan age, diverged as widely almost from the track which he had so successfully pursued, as the two poles from each other: Hippocrates founding all

* Coup d'Œil sur les Révolutions et sur la Réforme de la Médecine.

his doctrines upon the basis of patient and attentive observation ; while the Dogmatists madly spurned observation, substituting for it the hallucinations of their own distempered imaginations, and the unsubstantial reveries of their own puerile theories. Hence, although avowedly taking the opinions of Hippocrates for his guide, Galen, dazzled by the false lights of the Dogmatists, did not always follow his guidance in its genuine spirit, but founded his own system, not so much upon the *genuine* as the *pseudo* Hippocratic doctrines of the Dogmatists, as expounded in the book, *περί φύσεως ἀνθρώπου*, respecting the nature of man.

Notwithstanding the numerous commentators who had preceded him in the task of illustrating the writings of Hippocrates, Galen, with a presumption unworthy of his talents, and derogatory to his erudition, denied that any but himself had been able to comprehend his meaning or explain his doctrines. Such vanity was utterly beneath a genius ranking so deservedly high as Galen, who, instead of robbing others of the solitary laurel which they claimed, could have spared sufficient from the redundancy of his own to have buried them beneath its verdure. It savoured more of the assurance of Asclepiades, or the presumption of Thessalus, than of the wisdom of Galen; and brings him down from the lofty pinnacle, on which public admiration had so proudly exalted him, to the level of more ordinary mortals.

"Medicine," according to Galen's definition, "is a science which teaches what is sound and what is not so; and what is of an indifferent nature, or holds a middle place between what is sound and what is the reverse." In another of his books, however, which treats of the establishment of medicine, he defines it, with infinitely more neatness as well as perspicuity, to be an art which teaches the preservation of health and the cure of disease. Three things, he says, constitute the object of medicine, and which the physician ought to consider as sound, as not sound, or as of a neutral or indifferent nature. These things are the body itself, the signs, and the causes. The body he regards as sound, when in a good state with respect to the simple parts of which it consists, and where there is a just proportion between the organs formed of these simple parts; but when it departs from this state, and from this just proportion of its organs, he considers it unsound. When in an intermediate state between these two extremes, he considers it as being in a state of indifference or neutrality. He distinguishes as salutary those signs which indicate both present health and the prospect of its continuance. Those, on the contrary, which denote either ill health or its approach, he terms insalubrious: while those which are not indicative of either health or disease, present or approaching, he calls neutral or indifferent.

Causes he distinguished in the same manner. These three states comprehend, in his opinion, all the gradations between health and sickness, and

each has its prescribed limits. From this definition, a perfectly sound state of the body would appear to be a rare occurrence: but we are not the less able to form to ourselves a clear idea of such a model, so as to guide our judgment with respect to different constitutions. Upon this principle he establishes eight other leading constitutions, each of which varies more or less from the assumed type of a perfect one.

Besides these constitutions, he imagined several others to exist, arising from hidden causes, and proceeding from what he terms the *idiosyncrasia**, or idiosyncrasy of the constitution. It is this idiosyncrasy which occasions the particular loathings and aversions peculiar to individuals, and inexplicable upon any other supposition. But, notwithstanding the gradations by which these several constitutions vary from the perfect model assumed for comparison, it must not be supposed that this deflection from health is to be regarded as amounting to positive disease; or that all, in whom it occurs, are to be viewed in the light of valetudinarians: it is not the simple divergence itself which constitutes disease, but its degree; not its actual existence, but its existence to such a degree as to impede the healthy action of the parts. It would be out of place here, to enter with all the minuteness of Galen into the subject of signs or indications of a good, bad, or indifferent constitution: but it may be

* From the Greek *ἰδιος*, proprius, and *σύνκρσις*, commixtio—and this last from the verb *κράννυμι*, misceo.

proper to remark that he derived them from the original qualities of hot and cold, moist and dry, and from their proportion or disproportion to the bulk, figure, and situation, of the organic parts.

He admitted, with Hippocrates, the doctrine of four humours, the Blood, the Phlegm, the yellow and the black Bile: as well as three kinds of spirits, the vital, the animal, and the natural. These served, in his opinion, as instruments to as many sorts of faculties, residing in the respective parts where these faculties were formed. The first of these is the natural, whose seat he supposed to be in the liver, where it presided over the generation, growth, and nutrition, of the animal: the next, the *vital*, which he seated in the heart, whence it dispensed warmth and life to every part of the body, through the medium of the arteries: the third and noblest, the *animal* faculty, which, in conjunction with the *governing or reasoning* faculty, he supposed to reside in the brain, where it presided over all the rest, and communicated the power of motion and sensation to every part of the body, through the medium of the nerves. The original of all these he traced, like Hippocrates, to the first great cause, which, in common with his model Hippocrates, he denominated Nature.

These fundamental principles having been laid down, he proceeded to define disease, as consisting in "such a preternatural disposition or affection of the parts of the body, as primarily, and of itself, impedes their natural and proper action." Disorders he arranged under three principal

classes; the first comprising those of the similar, and the second, those of the organic parts, while the third embraced those common to both. He also followed Hippocrates in his division into *acute* and *chronic*. The causes of disease he divided into *external* and *internal*; of which the first are six in number, and, when well disposed and properly used, contribute to the preservation, otherwise to the derangement of health: these are the *air, meat, and drink, motion, and rest, sleeping and waking, retention, and excretion, and the passions*. These he named the *procatarticae** *cause*, procatactic or remote causes, because they call into action the internal causes, which are *antecedent* and *conject*. The first of these only is to be detected by reasoning, and consists chiefly in a vitiated state of the humours, arising either from fulness or cachochymy†, which implies their diseased state. Too great a fulness constitutes plethora, which may either affect all the humours of the body together, or only one particular humour which predominates over the rest; hence a plethora may be either sanguineous, pituitous, bilious, or melancholy: the first of these, however, differs from the others in this respect, that the blood, which is the basis of the other three, may far surpass the rest, constituting a simple plethora, while an excess of any of the

* Προκαταρτις, *primarius, principal*, from προ, *pro*, and αρχομαι, *incipio*.

† κακοχυμία, *cachochymy*—a vicious state of the humours. from κακος, *malus, bad*, and χυμος, *succus, humour*—and this last from χύω, *fundo, to pour out*.

others is termed a *Kacochymia*, *cachochymia*, *cachochymy*, or a *redundance of vitiated humours*, and not *plethora* : because these humours, abounding in an undue proportion, serve to vitiate and corrupt the blood. He farther divided causes into those which are *manifest and evident*, and those which are *latent and obscure*.

From the consideration of the *causes* he proceeds to the *symptoms* of disease, which he defines to be "a preternatural affection depending upon a disease, or following it as a shadow does a body." He recognises three kinds of symptoms : the first and most numerous of which consist in an injury, or interruption of the action of the parts ; the second in a change of quality, unattended by any disturbance of that action ; and the last in defects of excretion and retention.

The *signs* of disease he arranges under the heads of *diagnostic*, and *prognostic* ; the *former* being employed to point out the distinctions between the several kinds of disease ; and the *latter*, those which are collected from the species, violence, and peculiar character of each, and enable us to form some opinion as to its probable duration, effects, and termination. The *diagnostic* symptoms he divides into *pathognomonic** or *unvarying* symptoms, which, being peculiar to certain complaints, and uniformly present in their attacks, serve as infallible marks of distinction ;

* From *γνώμων*, index, the index or characteristic, and *νόσος*, morbus, a complaint.

and *adjunct*, or those which are common to many complaints, and serve only to distinguish such as belong to the same family or to the same genus.

Such was the method adopted by Galen for inculcating the first principles of his profession, from which it is sufficiently evident that his system was more theoretical than practical; consisting chiefly of abstruse speculations, fine-drawn distinctions, and cobweb reasonings; by which it is distinguished, in the most marked manner, from what we are able to collect of the system of Hippocrates, unadulterated by the corruptions of the Dogmatists; since the system of Hippocrates rested directly upon facts either observed by himself, or carefully collected from the observations of others. With all his faults, however, Galen was deservedly illustrious, and the services he performed for science will be for ever duly appreciated in the world of letters. There is no department of the medical profession which does not exhibit marks of his industry, and boast of having been enriched by his labours. He is the first writer who appears to have turned his attention to the art of obtaining the aroma of plants and flowers by distillation; at least he is the first who has left behind him a description of the process. He acquaints us* with the curious fact that starlings are fattened upon Hemlock, which is poisonous to man: and he appears to have been fully aware of the innocuous character of animal poi-

* *Simpl. Medic. Facult. Lib. iii. cap. 18.*

sons, unless when mingled with the blood; observing* that "nothing has the same power upon the human body outwardly as inwardly. Thus, neither the venom of the Viper, nor of the Asp, nor the frothy spittle of the mad dog, is alike mischievous when it falls upon the skin or enters the stomach, as when outwardly communicated by a wound†." In confirmation of which, he adduces the fact of Cleopatra's having killed herself by introducing the poison of an Asp into a wound made in her arm with her own teeth‡. And he recommends the use of vipers flesh internally as a remedy in the cure of Elephantiasis§. In his book on the art of preserving health||, speaking of the influence of music, he informs us that "Æsculapius was in the habit of curing those in whom violent emotions of the mind had induced a hot temperament of body, by melody and songs."

* De temperamentis, Lib. iii. cap. 2.

† We meet with the same fact in Lucan's Pharsalia, Book ix. verse 614, where Cato is introduced saying to the soldiers, who were afraid to drink of a spring infested with serpents, although they were suffering severely from thirst, that,

*Noxia serpentum est admixto sanguine pestis;
Morsu virus habet, ut fatum dente minatur.
Poena morte carent.*

‡ To by its bite alone the viper kills,
And every vein with fatal venom fills.
Mix'd in the cup, the poisonous draught descends,
And with the food, a harmless mixture, blends.

§ Gal. de Theriac. ad Pison. Lib. i. cap. 1 and cap. 10.

§ De art. curat. ad Glauc. Lib. ii. cap. 10. De simpl. med. facult. Lib. xi. cap. 1.

|| De sanit. tuenda, Lib. i. cap. 8.

and adjacent, or those which are common to many complaints, and serve only to distinguish such as belong to the same family or to the same genus.

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* *Simpl. Medic. Ferul. Lib. iii. cap. 18.*

Among other curious facts, he mentions the powerful influence which habit exerts over the system, in rendering it insensible to the effects of many of the most virulent poisons, as exemplified in the case of a woman who had gradually accustomed herself to the use of Hemlock (*Conium maculatum**) of which she was able to take considerable quantities, without the slightest injury.

Diabetes appears to have been a rare disease among the ancients, since we find little notice taken of it by any of the writers who preceded Galen: and even Galen himself acknowledges having met with but two cases of it*.

Anatomy and Physiology received many valuable additions, not only from facts collected in his various travels, but also from the numberless discoveries which his devoted attention to comparative anatomy enabled him to make. He appears, however, to have been fully aware of the insufficiency of comparative Anatomy to convey any thing like an adequate idea of the structure and arrangement of the human viscera: for, speaking of some anatomists of his own days, he says, "it is not strange that they were deceived, since they only dissected the hearts and tongues of oxen; never considering that these parts are different in other animals from what they are in men:" and, from another passage in his works, it would appear, that he did not himself neglect this important branch of medical study; for,

* De Loc. Affect. Lib. vi. cap. 3.

speaking of the structure of the Liver, he says, "I do not propose enumerating here the number of lobes which compose the livers of other animals, because I have not as yet described the particular structure of any of their organs, except in a few passages, in which I have been obliged to do so, in order to illustrate what I have to say concerning man. If I live, however, I shall, at some time or other, describe the structure of the bodies of beasts, and furnish an exact anatomy of all their parts, as I have now done with respect to the various parts of the human body."

It may indeed be justly regarded as a matter of surprise, that a doubt should be entertained on the subject of Galen's operating upon human as well as brute subjects: for, at the period in which he lived, and, indeed, for a considerable time before, human subjects could not have been by any means difficult to obtain; nor does human dissection appear to have been neglected by the practitioners and teachers of the age, although it may possibly have been less frequent than in our days; as we learn both from Rufus the Ephesian, and from Seneca, who flourished under the reigns of Augustus, Tiberius, and Nero, the latter of whom expressly says, "*Medici ut vim ignoratam morbi cognoscerent, viscera hominum reciderunt.*" Physicians, in order to discover the latent cause of disease, dissected the human viscera. Practitioners at Rome were likewise permitted to dissect the bodies of enemies; a permission of which they fully availed themselves during the

wars of Marcus Aurelius with the Germans; in addition to which, the bodies of criminals, as well as those of exposed children, were easily obtained; and, while the system of Slavery continued, there was no law either to prevent a master from dissecting at pleasure the body of a deceased slave, or selling it to another for the purpose of dissection. Hence, not only could there have been little difficulty in obtaining human subjects in those days, but they must have even been more attainable in the days of Galen than in our own.

We can readily collect, from the remarks of Galen himself, that he regarded comparative Anatomy merely as an introduction to human dissection, without which the latter could not, in his opinion, be studied with sufficient advantage.

"It is easier," he observes, "for an experienced anatomist to detect at a glance what is familiar to his observation, and what is not, than for a novice to discover by close application what is most obvious." Those, he acquaints us, who, without the previous study of comparative anatomy, availed themselves of the opportunity offered by the wars in Germany to dissect human subjects, derived no other advantage from it than an acquaintance with the position of the human viscera; while a person previously accustomed to dissect animals, and especially Apes, would have been struck at once with the difference of structure.

Among other methods of acquiring anatomical knowledge which Galen recommends, and of

which he occasionally availed himself, were those fortuitous opportunities which accident sometimes presents, and of which the zealous student should not fail to take advantage. This, which he himself styles *Ἀνθρώπου κατὰ ἐπιτροχὴν*, or fortuitous anatomy, was the only kind tolerated by the Empirics: and Galen, after advising students to visit Alexandria for the purpose of studying the human skeleton, and not to trust merely to the descriptions in books, gives the following account of the manner in which he availed himself of opportunities of this description which occasionally offered in the course of his travels. "I have often," he observes, "examined human bones, when decayed tombs or monuments have fallen in my way. A sepulchre, slightly built on the brink of a stream, having suffered from the violence of the torrent which had overflowed it, the body, carried away by the force of the current, stopped at last in a kind of harbour, bounded by pretty high banks. I had an opportunity of seeing this body, the flesh of which was already rotten, although the bones still adhered to each other; so that it resembled a skeleton prepared for the use of the student. At another time I saw the body of a robber lying on a mountain, remote from any public road. He had been killed by a traveller whom he attacked, and the inhabitants of the vicinity, conceiving so wicked a man a proper prey for the vultures, refused him the rights of sepulture; and, two days after, his bones were stripped

of their flesh, and dry, like those prepared for students."

In the same chapter, he describes a complaint, accompanied with carbuncles, which had been epidemic in most of the cities of Asia, and afforded frequent opportunities for observing the disposition of the muscles, in several places in which they had been exposed through the effects of the complaint.

Such were the methods by which Galen accumulated that vast assemblage of anatomical facts, which gives such value to his works, and of which Vesalius, one of the most learned anatomists of the 16th century, has spoken in terms of such high and, at the same time, deserved commendation. He composed several works on the subject, of which the principal are his "Anatomical Administrations," consisting of fifteen books, the last six of which have been lost, and his treatise on "The use of the parts of the human body," in seventeen books, which have been preserved entire: he also left about eleven other works on Anatomy, handed down to us in a more or less imperfect state, and at least four more which have been wholly lost.

In concluding this sketch of so distinguished an individual, it would be doing a flagrant injustice to his memory to pass without notice, or to notice without approbation, those religious feelings which formed the predominant feature of his character. Although brought up in the darkness and polytheism of the pagans, and living

remote from those favoured regions over which Christianity had just begun to shed her healing dawn, so fully had Galen's anatomical researches impressed his mind with the conviction that the stupendous fabric of the human frame could only be the work of one All-wise, as well as All-powerful and beneficent Being, that he breaks out* into the following fine burst of religious feeling, worthy of a Christian sage of the 19th century, no less than of a Pagan philosopher and physician of the second :

" In writing these books, I compose a true and real Hymn to that awful Being, who made us all ; and, in my opinion, true religion consists not so much in costly sacrifices and fragrant perfumes offered upon his altars, as in a thorough conviction impressed upon our own minds, and an endeavour to produce a similar impression upon the minds of others, of his unerring wisdom, his resistless power, and his all diffusive goodness. For, his having arranged every thing in that order and disposition which are best calculated for its preservation and continuation, and his having condescended to distribute his favours to all his works, is a manifest proof of his goodness, which calls loudly for our hymns and praises. His having found the means necessary for the establishment and preservation of this beautiful order and disposition, is as incontestable a proof of his wisdom, as his having

* De usu partium, Lib. iii. Cap. 14.

done whatever he pleased is of his Omnipotence."

Nor is this a solitary instance of that spirit of genuine piety which directed the thoughts and pervaded the writings of this great man: his works abound throughout with similar examples; indeed he never suffers an opportunity to escape of inculcating such sentiments, (which are evidently the spontaneous offspring of his heart,) and exposing at the same time the idle fallacies of the Epicureans, who attributed all the lovely and harmonious frame of Nature to the fortuitous concurrence of atoms. He denies, indeed*, the Mosaic doctrine of God's command being the sole cause of every thing which exists; because he could not conceive it possible that the Almighty could have made man out of a stone, or an ox, or a horse, out of a parcel of ashes. But, that this mistrust of the power of the Deity arose rather from the want of a sufficiently minute inquiry into the principle itself, than from any real doubts of his Omnipotence, must be evident from the passage just quoted; since, had he but suffered himself to reflect duly upon what he has advanced there respecting God's being the absolute master and creator of matter, he must have admitted, as a corollary necessarily flowing from that principle, that he possessed full power to modify the whole, or any part, according to his will.

* De Usu partium, Lib. xi. cap. 14.

It might have been expected that the labours of Galen would have been productive of an immediate and permanent improvement in the science of Medicine; this, however, we find unfortunately not to have been the case; his successors neither seconding his efforts to retain it in the path of improvement with a zeal proportionate to his own, nor following the brilliant example which he bequeathed to them, with any thing of ability. Hardly had the tomb engulfed his remains when medical knowledge subsided almost below its former level, and a night of Cimmerian darkness, relieved only, at times, by the transient splendour of a few passing meteors, enveloped the globe, or at least the fairest portion of it, for thirteen melancholy centuries. The dawn of science, no less than the dawn of that rational religion which the great Author of our Faith condescended to preach upon earth, became suddenly enveloped in a tenfold darkness, and the hideous phantoms of superstition regained, for a season, unhallowed possession of the temples and the schools. During this long and dreary night, however, of Vandalic barbarism and papal fraud, some few but brilliant coruscations of genius burst upon the gloom, and demand our notice.

Pergamus, which deservedly boasts of having been the birth-place of the illustrious Galen, also claims the merit of having given birth to Oribasius*, who appears to have been born

* Eusebius in Oribasio.

about the year 351, in the time of Julian the Apostate, and to have received the first rudiments of his education along with Magnus and Ionicus, at the school of Zeno*, the Cyprian, at Sardis, from which circumstance Oribasius has been erroneously supposed to have been a native of that town. Oribasius is allowed by Eunapius, (who is admitted to have possessed considerable skill in medicine, and whom Dr. Freund† conjectures to have been the same to whom the four books de Euporistis‡ and some other works are dedicated,) not only to have been the most learned man and most skilful physician of his day, but also to have been pre-eminent for his eloquence. Eunapius farther acquaints us, that he excelled no less in political weight than in learning, since it was chiefly through his influence that Julian made himself master of the Imperial crown: and we learn from Suidas, that he was repeatedly appointed Quæstor of Constantinople by that Emperor, who reposed the most implicit confidence in him. Under Jovian, Julian's suc-

* Zeno, as we learn from Julian, Ep. 47. afterwards removed to Alexandria, where he became a distinguished Professor.

† *Historia Medicinæ, &c. Angliæ scripta a Johanne Freind, M.D. Latine conversa a Johanne Wigau, M.D. inter Opera Omnia Johannis Freind. 4to. Parisus, 1735. p. 143.*

‡ *Euporista medicamenta vocantur quæ promptos in curandis morbis effectus edunt* Blancardi *Lexicon Medicum.* p. 409. These medicines are called "*Euporista*," which operate quickly in the cure of disease. Euporia and Euporista are derived from the Greek *eu*, bene, well, and *proptu*, gradatim, to proceed.

cessor, however, he was stripped of all his wealth and splendour, banished from Constantinople, and fell into the hands of the Barbarians; in whose regard and veneration he made such rapid progress, through his medical skill and amiable qualities, that he was almost worshipped as a God. Being at length recalled from banishment, he lived again in affluence and splendour to the period at which Eunapius wrote, which Freind* conjectured to have been about the year 400†.

Oribasius was the author, according to Photius, of seventy, but, according to Suidas, of seventy-two books of collections, made not only from the works of Galen, and all the eminent writers who preceded him, but also from the result of his own experience: all which he abridged, at Julian's request, into one volume. Of these books only the first fifteen, along with two others on the subject of anatomy, which his translator Rasarius calls the twenty-fourth and twenty-fifth of his collection, have reached down to our times. He wrote, besides, four books on diseases and medicines, addressed to his friend Eunapius. Photius mentions likewise two volumes, which were extant in his time, consisting the one of four, the other of seven books, in which was contained an Epitome of Galen, dedicated to Julian. Paulus also speaks of this, but it has been since lost, together with many other tracts mentioned by Suidas. Many of the

* L. c. p. 143

† In Chrysantho

medical formulæ contained in the works of *Ætius* have been ascribed to *Oribasius*: but the Commentaries upon *Hippocrates*, published as his by *Guintherius*, are considered to be undoubtedly spurious. Indeed, not only are these commentaries written in a style utterly unworthy of *Oribasius*, but the writer, whoever he was, has executed his forgery in so clumsy a manner, as to represent *Oribasius* as composing these commentaries at the request of *Ptolemy Euergetes**, who lived above 500 years before him; and, among other glaring absurdities proposes, as remedies in certain cases, passages read, either from the Bible, or from *Terence* or *Virgil*; from which it seems probable that these Commentaries, such as they are, were written originally in Latin, and by a professor of Christianity subsequently to its corruptions by the pontiffs and clergy: nor is it easy to comprehend upon what grounds *Guintherius*, a man of erudition, could have been induced to ascribe to the pen of *Oribasius* a production not only so utterly unworthy of his talents in every respect, but bearing such strong and almost irresistible internal evidence of being spurious.

Both *Oribasius* and *Ætius*, who lived about 150 years after him, have preserved in their works many valuable fragments of the ancient writers, which are to be met with no where else; and, among others, fragments of *Archigenes* and

Herodotus, two of the most eminent of the pneumatic sect, and of Posidonius and Antyllus, both of whom appear to have been writers of distinction; especially Posidonius, who is highly commended by Galen. Antyllus*, as Oribasius acquaints us, wrote several works, in which he treated largely of the subject of Gymnastics. Among the fragments of Antyllus, preserved by Oribasius, we find many varieties of exercises unnoticed in the works of Galen or of others; and among the rest *Cricilesta*†, as the translators have erroneously rendered it, for it should have been properly called *Cricoclasia*: an exercise, the nature of which, from its long disuse, even Mercurialis, who has treated the subject of gymnastics with so much ability, does not attempt to explain, nor is it easy, from Oribasius' account, to comprehend what it was‡.

Oribasius, either of himself, or following the

* Oribasii Collect. 6. 21

† Oribas. l. c. 25.

‡ From the evident etymology of the word, we might be led to suspect it to mean the exercise of trundling a hoop, a common among children in our own days, *agere* being synonymous with *currere*, *currere*, a hoop, and *Agere* evidently being from *Agere*, *Derive*, *Agere*, *agito*, to drive, which makes in the future *Agere*, whence by an easy transition we obtain the word *Agere*, driving or trundling. The only valid objection to this etymology seems to arise from such a sport being hardly of dignity sufficient for notice in a treatise on gymnastics. Barreard, in his "Lexicon medicum renovatum," published at Leyden in 1736, takes no notice whatever of the term, but in Fox and Bradley's useful, although reverse, medical dictionary, published in London, in 1803, the term *Cricoclasia*, evidently synonymous with the *Cricilesta* of Oribasius, is explained as meaning "exercise with a hoop."

authority of Appollonius, speaks much of the advantage of scarification*; a method of cure rarely noticed by former writers. He mentions his having repeatedly found it of the greatest service in Amenorrhœa, Dyspnœa, Cephalalgia, and a Defluxion from the eyes; he also particularly notices its effects upon himself, when attacked by the plague, then desolating Asia: on the day after the attack, he took two pounds of blood in this manner from his legs, and by this practice not only cured himself, but a multitude of others. It must, however, be observed, that the operation spoken of by Oribasius differed from the method used in our days, with which last alone† the Arabians appear to have been acquainted: while, from the account given by Oribasius, as well as from some passages in Galen, it is evident that the practice of the ancients was to make deep incisions into the skin with a scalpel, by means of which a greater discharge of blood could be produced. The same practice still prevails in Egypt, and the whole process has been copiously described by Prosper Alpinus. Having passed a tight ligature under the ham, the leg, previously well rubbed, was immersed in warm water, and then beaten with reeds to make it swell, after which it was scarified: an operation totally different from that with cupping-glasses: on which account Oribasius, when treating of Vertigo‡, carefully distinguishes between them.

* Oribasi Coll. 7. 20. † Albucasis. Lib. 2.

‡ Synopsis 3. 5

To Oribasius we are indebted for the first description of that singular kind of insanity termed *Actinθporog** or *Actinθporia*; a species of melancholy madness, of which he gives the following curious and interesting account.

"Those who labour under this complaint quit their habitations at night, imitate Wolves in every thing, and wander among the tombs till day. They may be known by the paleness of their countenances, and their heavy, dry, tearless, hollow eyes; their tongue is parched, their mouth destitute of saliva, and their thirst is excessive; while their legs are covered with ulcers occasioned by falls and bruises in the dark." To this account Actuarius adds that they return to their homes in the morning and continue well till the return of night: while Aëtius gives a similar description, with some trifling variations, and says that the complaint, which he terms *kuráθporia*†, as well as *Actinθporia*, is most frequent in February. Aëtius took his account from Marcellus Sidetes, who lived in the reigns of Adrian and Marcus Antoninus‡, and wrote forty-two books on the treatment of diseases, in heroic verse; as we learn not only from Suidas, but also from an ancient epigram which is yet extant§.

* *Actinθ*, *Lupus*, a Wolf, and *Actinθporog*, *Homo*, a man.

† *Lab. Medic. Lab. vi. Cap. 24.*

‡ *Kúov*, *Canis*, a dog, and *kuráθporog*, the term *kuráθporog* was employed by the ancients to designate an impudent fellow.

§ Between the years 117 and 180. || Kuster in Suidam.

Among the works of Oribasius, although chiefly compilations, we meet with many new facts and observations on the subject of diseases; or such at least as we look for in vain in the works of other writers which have reached to our days. He was a man, according to universal report, not only of the most elevated genius in other matters, but particularly distinguished for his skill in therapeutics; and, from a careful study of his Commentaries, we shall be convinced how admirably his plan of treatment was adapted to the nature of the complaint. Thus, in Epilepsy, he prescribes bleeding at the commencement, purging four or five days after, and, in three days more, cupping and scarifying. He directs the same evacuations, sometimes with the addition of Sinapisms, to be repeated at suitable intervals; and in the mean time exhibits calefacient and antispasmodic remedies, such as Castor, Mint, Rue, the juice of the *Laserpitium trilobum*, the *Σαλψις* of the Greeks, &c. &c. He also speaks of the root of the Pæony as a specific in Epilepsy, when worn as a collar round the neck, but seems to place little reliance upon it, and to have depended chiefly upon the plan of depletion.

Towards the close of this century lived Nemeseius, Bishop of Emessa*, who, although not belonging to the medical profession, or strictly entitled to rank as a medical writer, deserves to be noticed here, not so much on account of his treatise *Περὶ Φυσιῶς Ανδρωων*, on the nature of

* A city of Phœnicia.

man, a work which has gone through numerous editions, as for the purpose of correcting an erroneous inference, which the editor of the Oxford edition has drawn from it, tending to detract from the credit of our countryman Harvey, and to claim for the Bishop the prior discovery of the circulation of the blood.

"The motion of the pulse," says the Bishop*, "originates in the heart, and principally from the left ventricle; the artery being violently dilated and contracted with unvarying regularity. During its dilatation it draws the thinner part of the blood from the next veins; the exhalations or vapours of which blood form the aliment for the vital spirit; but, during its contraction, it exhales whatever vapours it has, by secret passages through the whole body, so that the heart throws out whatever is fuliginous, through the mouth and nose, by expiration." How dissimilar is this from the beautiful simplicity of the true doctrine of the circulation, as discovered and explained by the illustrious Harvey, who first pointed out its course after its passage through the lungs, from the left ventricle of the heart, through the Aorta, and all the ramifications of the arterial system, to every part of the body—and the manner in which it is re-collected by the various vessels of the venous system after having performed its functions, and poured into the Vena cava, by which it is reconveyed to the heart and delivered into the right auricle, which transmits

* Cap 24.

it to the right ventricle—from whence it is again expelled by a powerful muscular contraction, and forced through the pulmonary artery into the minutest ramifications of the vessels of the lungs, wherein it undergoes that important change which alone fits it for maintaining the powers of life, and re-collected and brought round to the left auricle and left ventricle, for the purpose of being once more propelled in a renovated form through the arteries, carrying with it life, health, warmth, and animation, to the entire system.

The dissimilarity between these two descriptions cannot fail to strike the most unprofessional reader, and we can only account for the editor of the Oxford edition of the Bishop's works fancying that he had detected in the Bishop's remarks an anticipation of the immortal discovery of Harvey, upon the very probable supposition of his practical ignorance of the nature of the circulation, and his being a better linguist than physiologist. So far indeed was the Bishop from entertaining a more correct notion of the manner in which the circulation is maintained than Hippocrates, Galen, Oribasius, and the hundreds who both preceded and succeeded him, that it is evident, from his own account, he laboured under the popular delusion of the day; believing the sole use of the arteries to be for the transmission of the animal spirits, or, as he terms them, those exhalations or vapours which form the aliment of the vital spirit; nor did he imagine that they conveyed any grosser fluid,

much less blood. Indeed, as Doctor Freind very justly remarks*, "from this very description, and from what he has said in the same chapter on the subject of the liver, (that that viscus supplies nourishment to the body through the veins, it may be fully inferred that Nemesius had no notion of the manner in which the circulation of the blood is carried on."

Ætius†, who flourished about two centuries after Oribasius, or, as some authorities say, in the beginning of the sixth century, was born at Amida, a city of Mesopotamia, on the banks of the Tigris, and was not improbably a Christian; which has occasioned his being confounded by many with another of the same name, who was born at Antioch, and was distinguished among the Arians in the time of Julian. Ætius, the physician, who is styled, in some manuscripts, *Κωνσταντίνος Ὁφθαλμικός*, studied at Alexandria; a circumstance which sufficiently accounts for the number of remarks on the Pharmacy of the Egyptians to be found in his works.

* "Hinc admodum dicam, ex hac ipsa descriptione, et ex his quæ de jecore in eodem capite cum auctor trahit, (quod viscus ille alimentum corpori per venas suppeditare autamque manifeste constare posse, nunciam de modo, quo peragitur sanguinis circulatio, notitiam habuisse Nemesium."—Frenel. Hist. Med. p. 199.

† About this time the use of Hellebore, formerly in such repute among the ancients, but which had become obsolete, was revived by Asclepiodotus, who is said by Photius to have performed many extraordinary cures by means of it, in some of the most obstinate complaints. Asclepiodotus was celebrated for his skill in Mathematics and Music—See Phot. Biblioth. 360.

He made a large collection of formulæ, chiefly of nostrums sold as secrets by their inventors; some of which appear to have been introduced merely for the sake of ridicule, and to point out the preposterous value set upon them by the credulous. Ætius, like his predecessor Oribasius, has preserved many fragments of ancient writers which would otherwise have been totally lost; especially from the works of Soranus the Methodist, and Leonides, the Eclectic, who was a most expert surgeon: and both he and Oribasius have described many medicines unnoticed by others.

Ætius is among the number of those writers who have left us the result of their reading or experience in the treatment of that melancholy affliction which follows the bite of a rabid animal; and among other things he mentions having himself known* an old man who cured those who had the misfortune to be bitten, with common sorrel only. He washed the wound well with a decoction of the herb, and afterwards covered it with a cataplasm of the bruised plant; the patient drank of the decoction freely, and made in consequence a large quantity of turbid urine.

He also gives an account of the *λυκανθρωποι*†, or *τετραθρωποι*, of whom the first mention was made by Oribasius, in which he says that those who were afflicted with this dreadful insanity not only went abroad at night in imitation of

* Ætius. Lib. Medic. Lib. vi. Cap. 24. † Id. l. c.

of wolves and dogs, but were in the habit of breaking open the tombs of the dead, and had their legs much ulcerated either by frequent falls, or by the bites of dogs*. He also observes, that this complaint makes its attacks most frequently in the month of February.

Ætius appears from his writings to have been a practical and experienced Surgeon, and his works abound in valuable observations on this subject, as well as descriptions of the various methods of performing the several operations; and he is more copious even than Celsus, on the history and treatment of disorders of the eyes. He omits, however, the consideration of fractures and luxations, important parts of Surgery, to the discussion of which Celsus has devoted an entire book. Ætius, however, in his notice of other matters, mentions many facts not to be found in Galen or Celsus. The number of manual operations he describes, the greater part of which he either performed with his own hand, or witnessed, is more than double that which can be found in either of these writers, and he even

* Strange as this complaint appears to have been, and rarely as we are afflicted with it in these days, instances of its occurrence at a comparatively late period are not record, of which a remarkable case occurs in Sebastianus (Observat. med. rar. de Lycanthrop. Obs. 1) who speaks of a husbandman of Padua, who, imagining himself to be a wolf, attacked, and even killed, several persons in the fields; and persisted, when taken, in declaring that he was a real wolf, and that the only difference consisted in the inversion of his skin and hair—Mead. Works. Medica Sacra. Chap. vii. p. 498.

notices some which are omitted in the works of Paulus.

We learn, from many parts of his works, how frequent the use both of the actual and the Potential Cautery* was among the ancients: in Paralysis, especially, he says, upon the authority of Archigenes, that we should not hesitate to make an eschar, without delay, by either of these methods; one of these eschars should be made in the nape of the neck, near the origin of the spinal marrow; two more on each side; and three or four on the crown of the head, one in the very centre, and three others surrounding it: and he adds, that if the discharge continues a good while, hopes may be entertained of recovery. He expatiates still more on their advantages in obstinate attacks of Asthma, which have resisted every other remedy. In such cases he recommends making one near the centre of the articulation of the clavicle, taking care not to injure the trachea or wind-pipe; two smaller ones beneath the under jaw, near the Carotid arteries one at each side, being careful to prevent them from penetrating more than skin-deep; two more below the breasts, between the third and fourth ribs; as many on the back, near the fifth and sixth ribs; one in the middle of the thorax, near the ensiform car-

* Actual cautery was performed by means of a heated iron, and was much quicker in producing its effect than the potential, which was a caustic application of pure potash combined with quick-lime, employed in the same manner as at present.

tilage; one between the eighth and ninth ribs; and three along the course of the spine, one in the centre, and one on each side. Those below the neck should be of considerable size, neither superficial, nor yet very deep; and their discharge should be maintained for a considerable time. He recommends a similar practice in cases of Empyema* and Phthisis; and in both cases he advises a circular form for the eschara, as tending to protract their healing. This exactly corresponds with the modern practice of issues, and his directions in the treatment of Asthma are almost word for word those of Paulus, who wrote above a century later.

Ætius is the first who gives an account, taken from Leonides, of the Dracunculi, or Guinea worms: a kind of worms, varying much in length, which frequently breed in the legs, the muscles of the arm, or occasionally even in the ribs of children, as Paulus informs us. Boys are the most frequent sufferers from this complaint, and Ethiopia, Arabia, and India, the countries in which it is most common. Galen had heard of its existence in Arabia, especially in the neighbourhood of Medina, whence it has been named the *Vena Medinensis*, but he does not appear to have seen, and therefore did not describe it. These worms move under the skin, but without exciting pain; suppuration at length takes place

* A collection of pus in the Thorax or Chest; from *empyema*, within, and *pus*.

towards the extremity of the worm; the skin breaks, and the head of the worm protrudes. Care should be taken, in the cure of this complaint, that the worm should come out entire, whether spontaneously or by art: for, when it breaks, the part which remains behind occasions severe pain and inflammation. These worms appear to attain at times an almost incredible length, often exceeding ten or fifteen palms. Albucasis speaks of one which measured no less than twenty palms. The Arabs, ignorant whether it was a *vein* or a living animal, termed it, as has been already observed, the Medina vein, from its frequency in that town and neighbourhood; and Avicenna treats of it under the head of Abscesses. Except when, from neglect, a portion has been left behind, and excited considerable inflammation, it does not appear productive either of much inconvenience, or of much disturbance to the general health: for Rhazes relates the case of a man, who, although he had not fewer than forty of them in his body at once, recovered his health perfectly. Kempfer, who notices the frequency of this complaint at Ormus, in the entrance of the Persian Gulph, ascribes it to drinking stagnant rain water, containing the ova or eggs of the insect; and says it is cured with ease in the places where it occurs: he saw living specimens of the worms twice, and describes the method of extracting them minutely.

The works of Ætius abound in external remedies; and nearly an entire book is devoted to the preparation of plaisters. He has not only

collected all the prescriptions to be found in Galen's Commentaries on the preparation of medicines, but all that could be gleaned from more modern works, whether Grecian, Persian, or Egyptian. These he arranged according to their several qualities and uses. In treating, however, singly of the several plaisters, he is by no means clear or precise with respect to the nature of their operation, not sufficiently discriminating those which are discutient from those which are suppurative, and sometimes even recommending the same plaister as possessing both qualities.

He appears to have been the first Christian writer among the Greeks who introduced the doctrine of spells, relics, and incantations—those remains of a gross and senseless superstition—into medical practice, although such remedies had been much in repute among the ancient Egyptians. Among other remedies of this description, which he gravely recommends, was a finger of St. Blasius for the removal of any substance sticking in the throat. His celebrated remedy for Gout, which he terms the *grand Drier*, is too remarkable to be passed without notice: it is an external application, the use of which is to be persevered in for an entire year, accompanied with a strict adherence to the following regimen, laid down for every month. In September, the diet should be wholly milk: in October, garlic must be eaten: in November, bathing is prohibited: in December, cabbage: in January, the patient should take a glass of pure

wine every morning: in February, he must not eat Beet: in March, he must mix sweets both with his eatables and drinkables: in April, he must refrain from horse-radish: and in May, from the fish called Polypus: in June, he must take cold water in the morning: in July, he must abstain from Venery: and in August, from eating Mal-lows.

Such was the quackery of these early ages of Christianity, in which superstition as gross and as contemptible as ever disgraced the darkest night of pagan ignorance began to corrupt the practice of medicine, as it had already profaned the altars of religion.

In Surgery, Ætius has left some useful observations, and made some remarks which might prove serviceable even to physicians: as, for instance, in a chapter principally, if not wholly, taken from Herodotus, in which, speaking of *Ἐκτασσηματα*, or eruptive diseases of the skin, which either accompany or supervene upon a fever, especially when they prove troublesome from itching, or effloresce like flea-bites, he says, the system is in such cases loaded with vicious and redundant humours, which should be carried off either by emetics or purgatives, in order to prevent the vital parts from being injured. At the commencement, when the fever is high, he recommends bleeding.

The division of Ætius' sixteen books into four *τετραβιβλοι*, or volumes, as Fabricius observes, was not made by Ætius himself, but by some of his more modern transcribers: for, whenever

they are referred to either by Photius or by himself, the reference is uniformly made according to the number and series of the books.

Palladius, the Sophist or Iatrosophist, received his education, as it would appear from his own evidence, at Alexandria; but neither the time nor the place of his birth is distinctly known. Some writers have assigned him a date as remote as the year 126; while Santalbinus places him in the third century, near the time of Galen. But these, however, appear to be wide of the truth: since he was evidently junior to Aëtius, if not to Alexander, who flourished many centuries later. He was the author of some commentaries on the Book of Fractures written by Hippocrates, from the fragments of which, that have alone survived the canker of time, there appears but little ground for regretting the loss of the remainder. Of his Commentaries on the sixth book of Epidemica, but seven sections have been preserved; the remainder having perished. In these Commentaries he explains both Hippocrates and Galen, with considerable clearness and precision, and particularly remarks the increased prevalence of calculus in his time, along with the increased difficulty of cure, which he ascribes to the growth of luxury and the greater prevalence of indolent habits. His book on Fevers is concise and perspicuous, and, together with the chapter on *Episla**, taken almost wholly from Aëtius.

* *Episla*, Ἐπισλας, a species of continued fever, in which the heat and cold are felt at the same time, and

The remarkable comparison between Hectic fever and water poured upon quick-lime, which occurs in the chapter just named, is evidently copied from Galen, *Ætius*, and Alexander. Various MS. copies of this work are extant in the Imperial library at Vienna, yet none bearing the name of Palladius, but all ascribed either to Theophilus, or to Stephanus, or to both; and in the title-page of one copy, it is said to have been taken from the mouth of Theophilus himself. Yet, if we consult Palladius himself, we shall find he was the true author; since he speaks of the work as his own production, in those parts of his Commentaries on the Epidemics of Hippocrates which are yet extant. Hence we learn the small confidence to be placed in the title-pages which we frequently find prefixed to ancient Manuscripts: since the name of the author is often inserted at random, from mere conjecture, from erroneous information, or from some private suggestion of the librarian, without any regard to truth.

Alexander was born at Trallis, a celebrated city of Lydia, the inhabitants of which were distinguished for the purity of their Greek, arising from their proximity to the cities of Ionia. He was the son of Stephanus, a physician of that city, of some note, under whom, as well as the father of Cosmas, he was instructed in the first rudiments of medicine. It is uncertain whether

do not mark distinct stages. The name is derived from the Greek *ἥπιος*, *mild*, and *αἰτάνω*, *cause*, to grow warm.

he was a Christian or a Jew; but, from some formulæ subjoined to the eleventh book of his works, Dr. Freind* concludes that he was not a Pagan; since the Pagans rarely employed incantations formed out of texts of Scripture; a practice which appears to have originated with the earlier Christians; and of which we find the first example in *Ætius*: and of which the works of *Marcellus*, the *Empiric*, who unquestionably was a Christian, furnish abundant instances. Equally doubtful is the medical Sect to which he belonged; although *Fabricius* founds an idle conjecture as to his having been a *Methodist* upon the trivial circumstance of his having spoken of *Method* in the art of Medicine. His writings, however, shew him to have been directly opposed to the tenets of that sect, as may be seen in every page: in addition to which, he never once names the grand division of diseases established by the *Methodists*; and never appears to think even of the *Resumptive* or *Metasyneritical* cycle, or the *Diatriton*, or the rule of fasting for three days preparatory to beginning a course of Medicine, all of which were perpetually in their mouths: his constant use of purgatives, likewise, in almost every complaint, and especially in *Gout*, is utterly repugnant both to their precepts and to their practice. Besides, the distinction of Sects cannot be traced lower than the days of *Galen*, not even that of *Alexandria*, which, for so many successive ages, ranked as the most distinguished

* *Historia Medicinæ*: pag. 169.

school of Medicine. The only exception to this appears in the case of Vindicianus, and Theodorus Priscianus, two Methodists, who flourished about the time of Valentinian the second, (A. D. 387) and seem to have copied everything from the more ancient writers of that sect. Galen, indeed, established the Rational or Dogmatic sect so firmly, that all the others soon became extinct, or rather were absorbed into it. The system founded by Galen could not however, in strict propriety, be termed a sect, since, in place of resting upon doctrines peculiar to itself, it was based upon all that was valuable, carefully selected from the other sects, as well as from the Dogmatic. Hence it was that the modern Dogmatists and the Methodists agreed so closely upon many points, especially in the treatment of diseases, that it is difficult, if not impossible, to distinguish between them.

Alexander flourished in the time of Justinian*, or about the middle of the sixth century. He was a writer of far more originality than either *Ætius* or *Oribasius*, drawing his treasures from the redundancy of his own rich and fertile stores, instead of being, like his predecessors, a mere servile compiler. He has, however, like *Ætius*, bequeathed to posterity a remedy for the Gout, which exceeds even that writer's in absurdity. His style and method of arrangement will be found, on comparison with Galen and his transcribers, to have been peculiar to himself: so that even

* Between the years 527 and 565.

when treading in the footsteps of the ancients, either in the description of symptoms, or cure of disease, (as was unavoidable in preparing a system of Medicine,) he employs his own language and method. His style is clear, concise, and perspicuous, and composed, as he observes himself, chiefly of the most common and intelligible expressions; and, although occasionally approaching to inelegant, from the unavoidable introduction of foreign terms, highly expressive, and singularly intelligible. While other writers adopted no methodical arrangement of diseases, he classed them with the most symmetric order, from the beginning to the end. Hence, although each followed his own order of arrangement, he is the only Greek writer who can enter the lists in this respect with Aretæus. There is also another point of resemblance between these two writers, (whom Freind regards as second only to Hippocrates,) that they have each treated but of a small number of complaints, not above fifty or sixty, being those probably which fell most frequently under their observation: for, had they condescended to transcribe from others, they might easily have rivalled *Ætius* and *Oribasius* in the bulk of their volumes. It is singular, however, that Alexander takes no notice whatever of the diseases of females: but, from the circumstance just mentioned, of his confining himself most probably to those cases which fell under his personal observation, we may reasonably conclude, that his practice did not extend to those peculiar complaints, which form in general

a distinct branch of the profession. Alexander is admitted by all to have been a physician of the highest skill, and most extensive reputation, celebrated not only at Rome, but in every country to which he travelled, whether in France, Spain, or elsewhere; and was termed, *par excellence*, Alexander the Physician. In the therapeutic parts of his works, he is clearer than his predecessors, from the circumstance of his compounding his own medicines, and being in consequence better able to discover their effects, from repeated observations, as he frequently, but elegantly, explains in the Preface to his twelfth book. He placed great faith in the powers of all his own medicines; and had a superstitious reliance upon the efficacy of charms and incantations, which he attempts to vindicate, and even appeals for this purpose to the authority of Galen. With this predisposition to superstition, it is not surprising that Alexander should have applied himself to the study of Magic: and he furnishes perhaps the only instance of a physician who borrowed anything from Osthanes, one of the most ancient of the Persian Magi. In other respects, although an admirer of the ancients, he did not scruple to express his dissent from them with freedom, and upon some points even to question the opinion of Galen. In the Diagnostic part of medicine he particularly excelled; especially in pointing out the distinctions between those complaints which most nearly resemble each other, and are in consequence most liable to be confounded together; as, for example,

Pleurisy, and inflammation of the Liver: the pain of Colic and that proceeding from Calculus: Hætic from other Fevers, &c.

Alexander appears to have written a work on disorders of the eyes, and another on fractures, both of which have been lost; but, with this exception, has confined himself wholly to describing the history, symptoms, and treatment of internal complaints, without diverging, like most of his predecessors and contemporaries, to the subject of Anatomy, Surgery, or Materia medica. He has given an entire book to the history of Gout—a complaint wholly unnoticed by Galen; whence it would appear to have been more frequent in the days of Alexander. For its cure he places his chief dependence upon purgatives, and among these *Hermodactylus**, (which appears,

* Bernard gives the following vague and unsatisfactory account of this plant in his *Læsson Medicinæ*.

Hæmic tetanus—Est planta, quæ habet folia triquetra vel quadrangula, radix, bulbosa vel tuberosa, ex aggregatis tuberculis composita, est rotunda, ævenius magis, alba, compressa, externe coloris rubicundi, interne valde albi, succulenta levis, fungosa, non fibrosa, vix fragilis, hinc facile in pulverem farinaceum reduitur dum recens est capere visum, dum amovet, subdoleis, farinaceis, paululum viscosi, vel lenti, odoris nullius, cujus sit planta radix, non ante diuturni, dicunt esse Colicæ speciem, quod vix credibile est, cum omnes ejusmodi bulbæ ad interius usque excavatum funem habent, quæ in *Hermodactylis* non reperiuntur.

Hermodactyl is a plant with triquetrous or quadrangular leaves: the root bulbous or tuberosus, formed of an aggregation of tubercles, it is round, the size of a hazel nut, compressed, externally reddish, internally very white, of a light fungous, friable, not fibrous, substance, hence easily reduced to a farinaceous powder: its taste while recent is acriol, but, when old, it has a sweetish, somewhat viscous, farinaceous

from the imperfect descriptions left us, to have been the same perhaps with the *Colchicum autumnale* or *Autumnal Crocus*, a powerful drastic, the use of which has been recommended in our own days,) seems to have been one of the most favourite.

In Causus, which he terms the "spurious burning Fever," when there is a redundancy of bile fit for evacuation, and the fever not intense, he prefers purgatives to the use of the lancet; adding this remark—"I remember having used purgatives in a case of acute fever, but this requires not only exquisite discrimination and judgment, but great presence of mind and confidence in the Physician." Oribasius has a chapter on the same subject, taken from Archigenes: and Galen judiciously observes that a Diarrhœa was one of those natural aids by which a crisis was produced in acute fevers. In Tertians and Quotidians, Alexander employed mild and not drastic purgatives. Should Syncope arise in Causus from crude and redundant humours, he advises bleeding. In Tertian, and

taste, and is destitute of smell: I cannot say to what plant the root belongs: it is said to be a species of *Colchicum*, which is scarce credible, since all bulbs of this sort are composed of successive coats, which is not the case with *Hermodyctyl*.

Fox, in his Dictionary, speaks of two species of *Hermodyctyl*, the Turkish *Hermodyctyl* root, which he says is good in diseased joints, (but to the plant producing it he furnishes no clue whatever)—and the *Hermodyctylus folio quadrangulo*, which he calls Snakes head Iris (*Fritillaria Meleagris*) the root of which is cathartic. Thus it is, that the want of methodic description has involved some of the most valuable simples in inextricable obscurity.

above all in Quartan Fevers, he recommends the exhibition of an emetic before the accession of the paroxysm, by which plan alone he succeeded in conquering the most obstinate attacks. This method of treatment, unnoticed by any preceding writer, has been strongly advised and successfully adopted in modern practice, and is not only serviceable in intermittent, but many other protracted complaints. He describes Phrenitis, or inflammation of the Brain, with the greatest accuracy, and confutes with ability the preposterous opinions of those who ascribed it to an affection of the Diaphragm, and not of the Brain. In this complaint, after bleeding freely from the arm, he was in the habit of opening one of the frontal veins. Although in obstinate cases he occasionally administered opiates, he accompanies their recommendation with due cautions, forbidding their use where the patient is of a phlegmatic habit or weak constitution, and where the complaint is not very violent. He gives almost the same advice in Coughs and Pleurisy. On a comparison of his account of Phrenitis and Pleurisy with those of Oribasius and Aëtius, his will be found infinitely more copious; while Paulus, in treating of the same complaints, has done nothing more than transcribe from Alexander.

His description of the various kinds of melancholy is remarkable for its clearness and precision; and in their cure he prefers the Armenian stone, an ore of copper, which is

powerfully emetic, to the celebrated Hellebore of the ancients.

In *Cynanche Parotidea*, or inflammation of the Parotid glands, a complaint familiarly known among ourselves by the name of the Mumps, he advises the use of the lancet, before the exhibition of any other remedies, and strongly reprobates the use of astringents and repellents. He describes the applications best calculated for discussing the tumour with safety, which should always be attempted in the first instance; but, should this be found impracticable, suppuration must be induced. In all cases where the swelling of these glands follows another complaint, and may be regarded as critical, instead of repelling, maturation is the only safe course.

In *Cynanche tonsillaris*, or Quinsy, he prohibits relaxants, and only admits the use of repellents. He speaks highly of a composition, in which wild rue is the principal ingredient, the preparation of which he describes; but bleeding is the remedy on which he chiefly depends, only cautioning us not to carry it to the extent of producing fainting. He takes notice of tubercles in the lungs, accompanied with Dyspnoea, or difficulty of breathing, but unattended with fever or expectoration; a complaint too frequent and too fatal among ourselves, especially in persons of a scrofulous habit, and spoken of also by Galen, whose practice of exhibiting heating and drying remedies, such as Opiates, Mithridates, and the like, Alexander reprobates, but not with more severity than justice.

He is, perhaps, the first writer who has spoken of a stone being coughed up from the lungs, (an occurrence by no means unfrequent in our days,) producing all the symptoms of true pulmonary consumption by the irritation it occasioned.

Bénapoc, Bulimia, or Inordinate appetite, he observes to be sometimes the result of worms; and mentions the case of a woman afflicted with worms, who complained of a perpetual gnawing in the stomach, accompanied with headache, and was completely cured by the use of *Hiera pira*, a bitter purgative electuary, composed chiefly of Aloes, which brought away a *Lanthrieus*, or round worm, twelve cubits long.

He recommends Rhubarb in weakness of the Liver and in the cure of Dysentery. But it is probable, from his speaking only of its astringent, and not of its purgative, qualities, that it was the *Rha Ponticum**, and not the *Rheum undulatum*,

* Much confusion has arisen with respect to these two sorts, the *Rha Ponticum*, and the *Rha Barbeyense*, the former of which Trémoulet regarded as a distinct plant, a species of *Lapathum* (*Reyheran Centaurea*?) described by Prosper Alpinus, which was brought from Pontus or Asia, and differed from the true *Rha Barbeyense Rheum* generally in having its root lighter, less compact, less bitter, and more astringent. The true Blackish, or Fenchel-z., of the Chinese, grows in several provinces of that paperous empire, where it is highly prized, especially when its roots are peduncles and variegated with a number of veins. This, which was long considered as the root of the *Rheum Patensum*, is now believed to be the produce of the *Rheum undulatum*, and is probably the same with the *Rheubarbarum* of Paeonius, who was the first writer who spoke of its purgative properties. Boissard, in his Lexicon, notices also a species of what he Rhaponticum, the root of which is long, thick, straight, and fleshy, externally black, but internally redish,

which he meant. He insists much upon the importance of bleeding in a paroxysm of the stone, advice which is undoubtedly judicious, especially where the inflammation runs high, and is accompanied with a suppression of urine.

Alexander has left twelve books, which are extant, some of which he wrote at the request of Cosmas, out of gratitude to his father, from whom, as has already been mentioned, he received a considerable part of his education. There is, however, in addition to these, a letter extant on the subject of worms, written by him to Theodorus, who appears to have consulted him on the case of his child. In this letter, which is written much after the manner of Galen's epistle to Cecilianus, he makes a very just remark upon the difficulty of giving advice upon a case communicated in general terms: and states, that, on this account, as well as from not seeing the patient, and inquiring minutely into the case, he was obliged to enter more minutely into detail than otherwise. He therefore commences with a description of the three kinds of worms which infest the human body, the *Ascarides*, the *Lumbrici*, and the *Tania*, of which last he had seen one nearly sixteen feet in length; and then

having, at first, a sweet taste, which becomes, on chewing, astringent and acrid—this is the root of the *Centaurea Centaurium*, or *Great Centaury*, and equally different from either of the former. It was the Arabians who, in their translations of Dioscorides and the other Greek writers, first confounded the true Rhubarb, *Rha Barbarum*, with the *Rha Ponticum*, or *Erythraea Centaurium*, which, although possessing purgative qualities, enjoyed them in a much weaker degree than the true Rhubarb of China and Tartary.

describes the several remedies adapted to the cure of each.

Alexander mentions several contemporaries of his own profession, who appear to have been men of talent and of eminence. Among these he particularly extols Jacobus Polychrestus, for his singular excellence both in Physic and Philosophy. Polychrest received his education from his father Hesychius, whose zeal in the pursuit of knowledge led him to visit many distant countries. He was a native of Alexandria, although his family originally came from the city of Damascus; and was so much beloved by the Emperor Leo the Great, as well as by the people, that he was created a Count, was appointed first Physician to the former, and had a statue erected to his honour by order of the Senate, in the baths of Zeuxippus*; and Isidore of Gaza, called by some the Pelusiote, who lived in the reign of Justinian, saw another statue erected to his memory at Athens†. Polychrest appears, from Alexander's account, to have been distinguished by great skill and experience, and to have been eminently successful in practice; in which he frequently employed enemata and suppositories. He was sparing in the use of cautery and the knife in surgical cases, and was by no means an advocate for bleeding. His patients, as we learn from Suidas, regarded him almost as inspired from Heaven, and, while they did all but adore him, placed the most implicit faith in his prognostics, because they never knew them

* Malel. in Vit. Leonis.

† Photii Biblioth. 659.

to fail. Alexander calls him *Θεοφιλητατος*, most beloved of God, and Suidas gives him the name of *Θεοφιλης*.

Uranus also, another of Alexander's contemporaries, was too remarkable in his character to be passed without some notice. He was a native of Syria, and practised physic at Constantinople. Where, or under whom, he was educated, or whether he received any education at all, does not clearly appear from any account which has reached us, either in the works of Alexander, or of Agathias, who deemed his character, adventures, and proceedings, so singular as to deserve a place in his history. He appears to have had, like Thessalus, more assurance than learning, and more conceit than skill. He chiefly frequented the booksellers' shops and the public piazzas, near the court, where he used to collect a number of persons of his own stamp, equally deficient in knowledge, talents, and morality, and worthy auditors of such an orator: such were the persons with whom he was daily in the habit of disputing, with his usual effrontery and presumption, upon the most sacred and important subjects, such as the essence and attributes of the Deity, the formation of the world, and other matters equally above his comprehension, and beyond his knowledge. Uranus either was, or affected to be, a sceptic in every thing; and took Pyrrho and Sextus Empiricus for his models. But he was no less deficient in his knowledge of books than in his knowledge of the world; and his ignorance in this latter respect betrayed him

into a thousand inconsistencies, and involved him in numberless dilemmas. When Arëbindus was appointed envoy to the court of Persia, Uranius found means to get himself included in the Ambassador's train, and so far succeeded in concealing his natural defects and assuming the demeanour of a sage, that, on his first appearance before the Persian monarch, he completely imposed upon him, and made so favourable an impression, that, out of compliment to him, Chosroes assembled all the Magi, or learned men of the country, to dispute with him: when, notwithstanding the abstruse nature of the questions discussed, and Uranius' utter ignorance of them, he succeeded, through his prodigious effrontery, aided, perhaps, not a little by the still greater ignorance of his opponents, in silencing them, if he failed to confute them. So completely did he ingratiate himself with Chosroes, that this monarch seated him at his own table, drank to him, and afterwards presented the same cup to him to pledge him, declaring him to be the most learned and agreeable philosopher who had visited his court. Even after quitting the court of Persia, Uranius was so fortunate as to retain the friendship of Chosroes, who even honoured him with his correspondence; a circumstance which raised Uranius' vanity to the most extravagant pitch, rendering his arrogance utterly insupportable, and leading him to treat all who were beneath the rank of princes with contempt.

Procopius, the celebrated Historian, a native of Palestine, who wrote in the time of Justinian,

also a contemporary of Alexander's, and, as Blondus, Sabellicus, and Traquellus, imagine, a physician, though they give no reason for this opinion, and we are not in possession of any evidence in support of it, with the exception of passages in some of his works, in which he has treated some medical subjects with a minuteness and accuracy of detail apparently bespeaking a practical acquaintance with them. Thus for instance, when speaking of the waters of the Po, he observes that their effect upon the stomachs of the soldiers was such as to impair their powers of digestion, and occasion dangerous Diarrhoeas and Dysenteries*: and, when noticing the dreadful famine under which the whole of Æmilia suffered, he says, the natural heat of the stomach was perfectly extinguished, and food, unless sparingly and frequently taken, overloaded it and proved fatal; while the bile, which prevailed in the system, gave a yellow tinge to the whole body. He notices also the extreme fertility of the whole of the tract adjoining to Vesuvius, and remarks the salubrity of the air in its vicinity, which induced physicians to recommend it for patients of a consumptive habit. He also embraces every opportunity to speak favourably of the professors of medicine, and acquaints us that it was to Elpidius, his chief Physician, that Theodoric, a short time before his death†, confessed the injustice of which he had been guilty, in taking away the lives of Boethius and Symmachus. He likewise informs us, that,

* Bell. Goth. Lib. ii. † A. D. 526.

at the siege of Edessa, when Ambassadors were sent to Chosroës, Stephen, a physician of eminence and a native of that town, who had not only been preceptor to Chosroës, but had cured his father Cavades, was one of the number, and appointed to address him, in the name of the rest, upon their introduction. Procopius farther states that, when Chosroës was negotiating a peace with Justinian, some time after, he refused even to listen to proposals for a truce, unless Tribunus, a physician, whose advice he required, were sent to him. And in another place he acquaints us that Tribunus, who also was a native of Palestine, and countryman of Procopius', was a Physician of great eminence in his profession, wise, temperate, and pious. He had, upon a former occasion, cured Chosroës, when labouring under a dangerous malady, for which he had been rewarded with princely munificence; and, upon the present occasion, after his having been detained an entire year, Chosroës offered him whatever he might demand: but he, instead of asking for a pecuniary recompence, only requested the release of some Roman captives: upon which Chosroës not only set those he named at liberty, but added three thousand others to the number: a circumstance which increased not a little the reputation of Tribunus.

Again, in noticing some surgical matters, Procopius speaks like a person who had a practical acquaintance with the subject of which he treats, and not like a mere historian who records, without comprehending, the statements of others.

When describing the wound which proved fatal to Artabazes, he expressly acquaints us that an artery in the neck was divided, which occasioned a hæmorrhage beyond their power to check*. When Trajan was wounded with an arrow above the right eye near the nose, the iron head penetrated, notwithstanding its length and size, so deep as not to be visible, and was so lodged as to create no uneasiness; but, at the end of five years, it began to appear in his face, and had, (at the time he wrote,) been gradually working out for three years, and would, in all probability, come entirely out in a little time, without occasioning much pain†. He gives us, in the same manner, a full account of the wound Arses‡ received in the face, and expatiates upon the perplexity of the surgeons, who were at a loss how to extract the arrow, without the loss of the eye, and serious injury to the nerves and membranes, which must be so wounded by the operation as to endanger his life. In this perplexity, Theoctistus, one of the number, pressing upon his neck, asked if he felt much pain, and, being answered in the affirmative, replied, then you will recover without the loss of your eye: an opinion in which he was the more positive, from his conviction that the point of the arrow had done little more than penetrate the integuments. Then, removing the wooden shaft, and making an incision into the muscles where the pain was greatest, he extracted the iron part, which was

* Bell. Goth. Lib. iii.

† Ib. Lib. ii

‡ Ib

three-pointed, with ease, and healed the wound without even leaving a scar behind. When, however, a similar operation was attempted upon Cutilas, where more force was necessary, he fainted, and the inflammation which supervened, extending to the brain, proved fatal. In another instance, that of Bucas, the hemorrhage was so violent he was near expiring on the spot, in consequence, as the surgeons imagined, of the transverse direction in which the muscles were wounded: he survived three days. But his description of the plague which devastated Constantinople in the year 543, exhibits still more decidedly a professional character, and could hardly have been written by a person who had not been brought up to the study of medicine. As we have had so many modern descriptions of this fearful scourge, which periodically devastates some of the fairest spots upon the globe, and, at times, extends its ravages even to the most distant regions, an abridgment of Procopius' account of the widely-extended ravages of the plague of 543 may not be uninteresting for comparison.

"This plague *," says Procopius, "must have been the immediate infliction of Heaven, since it was neither confined to district nor to season, but

* Although this plague raged, according to Procopius, only four months at Constantinople, it prevailed, more or less, throughout the world, for a space of no less than fifty-two years, spreading over almost every part of the habitable globe, and almost depopulating every region it visited, as we learn from Eusebius, whose account does not materially differ from that of Procopius.

spread its ravages to every part of the world, and through every season of the year, sparing neither age, sex, nor constitution. Commencing among the Egyptians of Pelusium, it spread its desolations on one side to Alexandria and Egypt, and on the other to Palestine and Syria, extending itself successively to every part of the world, and sparing no situation, however lofty, or however low; commencing at the coast, and spreading from thence to the interior. It reached Constantinople about the middle of spring, in the second year of its progress, accompanied," as Procopius, who was then resident in that city, goes on to acquaint us, with the appearance of apparitions, which seemed to strike those they met "in some part of the body," and who, as "soon as they saw the apparition*, were seized with the complaint." Sometimes, however, the fever came on without any previous warning: nothing indicating the proximity of danger. In some cases, buboes made their appearance in some one or other of the glandular parts, either on the first or some of the succeeding days. In others, however, the symptoms varied: some being comatose from the beginning, others violently delirious: the former forgetting every thing, and even requiring to be reminded of the necessity of eating; while those who were delirious were haunted with strange and fearful apparitions. Neither the physicians,

* Hence it is manifest that the brain was the first seat of attack, occasioning that delirium which led the victims to imagine they saw these strange apparitions, and heard strange voices, which induced them to act in the extravagant manner spoken of by Procopius.

nor those in attendance upon the sick, suffered from the contagion ; while others, who were less exposed to its attacks, were seized in the most unaccountable manner. Some leaped into the water, and, although Procopius has not recorded the event, we may, from the result of modern experience, conclude that those who escaped drowning were cured. In some, the buboes became gangrenous, and the sufferers expired in extreme agony : from which circumstance many practitioners, suspecting the *fomes* of the disorder to be concentrated in the Bubo, opened the bodies of those who died, and found a large internal carbuncle. Where petechiæ, or, as Procopius terms them, black pimples, the size of a lentile, occurred, the termination was uniformly and quickly fatal. Some died of hæmatemesis, or a vomiting of blood ; some, whose cases were regarded as hopeless, recovered, contrary to all expectation ; while others, who were deemed convalescent, as unexpectedly expired. In short, all was uncertainty, terror, and dismay.

Where the Buboes were large, suppurated kindly, and discharged freely, recovery almost certainly took place ; otherwise, gangrene and death, accompanied by horrid tortures, ensued. This pestilence raged for four months without intermission at Constantinople, and, at its height, carried off upwards of ten thousand victims daily. The frame of Society appeared to be broken up : business of every kind was at a stand, and the greatest distress and misery prevailed.

Such is a brief account of this dreadful calamity,

extracted from the ample details left us by Procopius, and bearing the strongest internal evidence of having come from a master's hand. Procopius describes the visitation, not in the general terms employed by Thucydides, and other unprofessional historians, but with a minute detail of all those more important but less obtrusive symptoms, which could only be expected to attract the attention of the professional observer—as its peculiar fatality among pregnant women, of whom three alone recovered; and the salutary effects of a free discharge from the Buboes: he speaks also of the various methods of treatment, in the language, and with the tact, of a physician of experience and judgment. Among other important facts which we learn from the history of this pestilence by Procopius, which is of itself sufficient to entitle him to a place among the medical writers of the age, the dissection of the bodies of those who fell victims to the malady, as marking the progress of anatomical knowledge, and the contagious character of the complaint, as evinced by its progress from the coast to the interior, are not among the least interesting, or the least important: and with respect to the uncertain effects of bathing, which appears, in some instances, to have been decidedly beneficial, and in others as decidedly prejudicial, no person who has read the admirable work of the learned and amiable Curry can be at a loss to understand the cause of this uncertain success: when, however, we come to consider the question of cold bathing, or rather of cold affusion, in fevers,

at a later period of this history, we may find occasion to recur to this matter, the discussion of which here would be somewhat out of place.

The seventh century, at which we now arrive, is sadly calamitous in the history of letters, as bringing the commencement of that night of mental darkness which overshadowed the world for so many successive centuries, and favoured the growth of those two monstrous superstitions which spread their rival empires so widely over the habitable globe—the Mahometan, which dates its origin from the earlier part of this century; and the Papal, which became fully developed in all the spiritual hideousness of its usurped authority almost at the very same time. But the capture of Alexandria by the victorious arms of the Saracens, which took place in the year 640, and the consequences which resulted to learning, and to medical learning in particular, from the apocryphal destruction of the splendid library forming the proudest boast of that once flourishing city, are matters which fall more properly under the consideration of the next chapter, wherein will be found a review of the progress of medicine, and the principal medical writers among the Arabians—for the present we shall confine our attention to the few writers of any thing like merit among the Greeks, who appear like the scattered remnants of *Æneas'* ships—"rari nantes in gurgite vasto."

Paulus was born in the island of Egina, situated in the Saronic Gulph, as Abulpharagius, (whose account is far more deserving of credit

than that of Le Clerc, who places him in the fourth century) informs us, some time in the course of the seventh century; but the year of his birth does not appear to be known. We are left in equal ignorance as to the place at which he received his education, but may reasonably conclude it to have been Alexandria, which continued to flourish as a School of Medicine for a considerable period after its capture by the Arabs.

Paulus, after completing the first rudiments of his education, travelled into many countries in quest of improvement, and thus stored his mind with an ample fund of useful knowledge, by which he did not fail to profit afterwards both as a writer and practitioner. He wrote upon the complaints incident to females, and is the first who has given us a treatise on Midwifery: from which circumstance he has been frequently called Paulus Obstetricius, or Paulus the Accoucheur, by the Arabians. He was, like the majority of his predecessors, a great compiler, and has preserved for us many fragments of the ancients, which would otherwise have been lost; especially the letter written by Diocles to Antigonius on the subject of preserving health. But, although a compiler, he differed materially both from Oribasius and *Ætius*. He borrowed freely from the writings of Alexander, not only taking the substance, but often transcribing the very words. He is the first writer who appears to have been acquainted with the true Rhubarb of the Chinese,

or at least he is the first who has spoken of its aperient properties, by which it is sufficiently distinguished from the *Rha Ponticum*, already spoken of in a former part of this chapter. Paulus speaks of it simply by the name of Rheum*, and adds that, by its admixture with some other aperients, their purgative qualities are considerably improved. It obtained its name of *Rha Barbarum*, in contradistinction from the *Rha Ponticum*, not from the country of its growth, but from its place of export, Barbary on the coast of Africa.

However low the estimation in which some

* Tillingius, in his *Rhabarbarologia curiosa*, published at Francofort upon Mayne, in the year 1679, gives the following etymology of the term *Rhabarbarum*, which is inserted here for the information of the curious.

"Quod ad communem appellationem, *Rhabarba* i. scilicet, spectat, constat quod *Rha* notet fluvium et plantam. *Fluvius* est situs in Scimitia Asiatica et Europae confinio Hæhie à Tartaris *Edel* vocatur, ab aliis *Volga* aut *Volga*. Percurrit eam regionem quâ Asia et Europa communi termino cœquantur. *Planta* eodem nomine *Rha* designatur, quæ in hujus fluvii supercilis nascitur, fluvio ipsi cognominis, ad multiplices usus medicinarum proficimus."

"*Barbarum* dicitur a putato natali solo nonnullis, qui credunt esse radicem à *Barbarica*, seu meridionali India, ad Europam delatum. Hinc etiam Excell. Joh. Daniel Horstius, in *Pharmacop. sua Galeno-Chymic. lib. 6. parte 1. capite 42* *Rhabarbarum* vulgare sic dictum scribit, quod sit insignis radix populi *Barbari*, seu Indici, vel provincie ejusdem *Barbara* ducta; forsitan et à *Rha* fluvio Ponti, nomen habere, ut de *Rhapontico* probabili ratione dicitur."

"*Petrus And. Matthiolus comm. in cap. 2. lib. 3. Dioscorid. et Rombertus Besonius stirp. Hist. pempt. 3 lib. 2. cap. 33.* *Rhabarbarum* vocant *Rheum Barbaricum*, seu *Rha Barbaricum*, cum multi reperiantur qui velut sic dictum à *Barbaria Africa* provincia, sic vulgariter appellata, ubi olim Carthago clarissima sedem habuit."

Tilling. *Rhabarbarologia*, p. i. pag. 49.

may affect to hold Paulus, we shall find him upon examination to have been far from contemptible either as a writer or a practitioner. He chiefly distinguished himself in the practice of surgery, in which he was in the habit of performing with success the most difficult and dangerous operations. His sixth book, which is confined to a distinct account of the various operations of Surgery, is the best treatise on the subject before the revival of letters, and contains many valuable original observations. From the manner in which he speaks of these operations, it is sufficiently manifest that he was practically acquainted with the method of performing them, and did not merely transcribe the descriptions of others. Indeed he details the success attendant on each of them, which he could not have done had he not been an eyewitness of their result. He even dissents, upon many points, from the opinions of former writers, not even excepting Galen himself, from whom he differs on the subject of Aneurism, and gives his own opinion as to the preferable mode of treatment: he even questions the plan recommended by Hippocrates in cases of a fracture of the bones of the nose, and dissents from Leonides, as to the treatment of a Hernia varicosa. His fourth book details the various methods of proceeding, and the different external applications required for ulcers, wounds, and other blemishes which do not call for the aid of a manual operation. In all these details he not only gives us a faithful account of the several methods of treat-

ment practised by the ancients, but also of those which he adopted himself, accompanied by his own opinions on the subject, not scrupling to give the preference to whichever method appears to merit it, without being biassed by any undue preference or irrational veneration for the practice of the ancients.

But Paulus possesses not merely the merit of giving a full detail of all the operations to be found recorded in the writings of his predecessors, enriched, as has been said, with his own commentaries upon them; he has also left a minute account of a multitude of perfectly new ones, of which no mention whatever is to be found in the works of his predecessors—as will fully appear upon a comparison of his works even with those of the Latin Hippocrates; although these last exhibit a most full and accurate view of the state of Surgery among the ancients, to which but few additions, and those not in general very material, were made between the times of Celsus and of Paulus. He is likewise infinitely more copious and satisfactory on many of these subjects than any of the ancients; as in the treatment of Hydrocephalus, the operation of Paracentesis, the extraction of stone from the bladder, &c.: which last operation Celsus only admits between the ages of nine and fourteen, while Paulus allows of its being performed after the age of maturity, and even in the more advanced periods of life, although he allows that the chances of success increase, within certain limits, with the youth of

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the patient: he also observes that the incision should be made not exactly in the centre of the perinæum, but obliquely, rather on the left side, towards the *nates*; and should be larger externally than internally, where it should merely be sufficient to admit of the passage of the stone. He also notices the treatment of a fractured patella, of which we find no notice whatever taken in Celsus. Among other novelties in practice, of which we hardly find any example in preceding writers, he recommends opening the jugular veins in defluxions of the eyes; an experiment untried before his time, except by Alexander, who had recourse to this method of bleeding in a case of *Cynanche tonsillaris*. He also describes a method of opening the arteries behind the ears, which he recommends in cases of *Ophthalmia* and *Vertigo*, contrary to the Aphorism left us by Celsus, who says that the parts of a divided artery never can reunite. Arteriotomy*, however, appears to have been

* Arteriotomy, as practised among the ancients, differed from the same operation as performed among the moderns, and was effected either by a transverse section and the subsequent application of a Cautery, or by excision: both which are minutely described by Paulus. The mode of proceeding by excision appears to have been the only one with which Aretæus was acquainted. Opening the arteries, as is now practised, with a lancet, appears to have been first attempted by Galen in his own person, when suffering from an excruciating pain in the region of the Diaphragm, which he removed by opening the artery between the thumb and fore-finger, and letting out about a pint of blood. Galen also mentions the case of a Priest, who was relieved, in a violent Pleuritic attack, by bleeding from one of the arteries in the hand.

occasionally practised both by the incomparable Aretæus and by Galen. Paulus frequently employed cupping and scarifying for topical evacuations, and appears to have been the inventor of a new kind of scarificator, which, having three points, made as many incisions at once, and thus facilitated the operation of cupping.

His description of the various kinds of Hernia, or rupture, especially the intestinal, is ample, accurate, and satisfactory: and he explains with clearness and precision their symptoms and causes, accordingly as they have been the result of a rupture or only of a distension of the peritonæum, (or membrane which lines the abdomen and covers its viscera,) by which the Ileon is enabled to descend either into the groin or the scrotum. He also describes, with more minuteness of detail than we find even in Celsus, the method of making an incision for the purpose of replacing the intestine: he says, however, that this operation should only be attempted in hernia arising from distension, and not in that from rupture of the peritonæum. This advice, however, does not appear to be given with his usual judgment.

Paulus has given a very curious chapter on the subject of wounds inflicted with arrows, describing accurately the various sorts in use among the ancients, with the most approved methods of proceeding in order to extract them.

Among other important operations, Paulus describes that of Bronchotomy, or making an

incision into the Trachea, in cases of violent inflammation of the tonsils, and other complaints of the throat and fauces, threatening suffocation : this he has taken from the writings of Antyllus. He recommends this operation in those cases only in which the inflammation is confined to the tonsils, throat, uvula, and upper portion of the trachea, justly observing that where it extends to the Bronchiæ, which are far beyond the lowest point at which an orifice could be made, the operation would be of no service. In performing it, he directs the incision to be made about the third or fourth ring of the Larynx, as the most convenient spot, from the absence of any large vessels near it, as well as from its not being covered with any flesh there. The head of the patient being bent back, in such a manner as to give a more commodious view of the part, a transverse section is to be made between the two rings, taking care not to cut quite through the trachea, which would be attended with risk. When the danger of suffocation has been removed, the lips of the wound may be united and the whole healed in the usual manner. Such is the account given by Paulus of this operation, which is even at the present day regarded as one attended with considerable danger, and only adopted in desperate cases.

Paulus likewise describes the operation for removing the *manimæ* in men when, as sometimes happens, they grow to an inconvenient

size. This operation, (which has been condemned by Fabricius of Aquapendente* as needless and cruel,) is not noticed by any other writer. Upon the whole, it must be abundantly clear, from the different facts which have been extracted from his works, as well as from the opinions he has advanced upon a variety of important subjects, not only that he was far from being a servile copier of the ancients, but that he had the manliness to avow his sentiments when in opposition to them, and that he possessed great practical knowledge of the several subjects which he discussed.

Stephen was born, it is believed, either at Athens, or Alexandria, from the circumstance of his being indifferently called Stephen of Athens, or Stephen of Alexandria; although it may be considered equally probable, that this distinction arose from his being born in the one and residing in the other city. He appears, from the various evidences which have been collected, to have flourished about the beginning of the seventh century, under the reign of Heraclius, and is conjectured by Lambecius to have been a pupil of Theophilus, a fact respecting which the evidence adduced is by no means satisfactory. Mr. Le Clerc erroneously assigns him a place in the third century, although his own works demonstrate that they were written after the days of Alexander—the 140th section of his Commentary upon the works of Galen

* Operat. Chirurg. p. 1, 50.

evidently containing an allusion to an erroneous interpretation given by Alexander of Galen's meaning on the subject of Quartan Fevers. If we admit him to have been the same who was sometimes known by the name of Stephen the Chemist, his work *de Chrysopoeia* furnishes sufficient evidence of the age in which he wrote, in its dedication to the Emperor Heraclius. It is, however, probable that there were more than one eminent practitioner of the name, and that the works of several distinct individuals have, in the confusion of the darker ages, been erroneously ascribed to one. Abi Osbeia, one of the medical writers of Arabia, of whom mention will be again made in the next chapter, speaks of seven physicans resident in Alexandria, and among them one named Stephen, who digested the voluminous works of Galen into sixteen books, and these again into seven classes, according to the nature of their subjects. These books constituted the sole study of the medical aspirants of those days; and the only occupation of the various professors appears to have been to expound, lecture from, and comment upon them. Stephen's Commentary upon Galen's first book to Glaucō seems to have been little called for, since the original text is written in so clear and intelligible a manner as to stand in no need of foreign illustration. But there appears to have been but little either of genius or originality in the literature of those days, in which the penumbra of that long and fearful eclipse which involved the world in its noxious shade began to obscure the understandings, and

impair the faculties of men. Even Stephanus, little as he can boast of originality, is the only writer who has the slightest pretensions to notice, prior to the capture of Alexandria, which took place in this century, and was followed by the temporary transfer of the literature and science of Europe from the regions of the cross to those of the crescent.

About a century later than Paulus, flourished a Greek anatomical writer of the name of Theophilus, who is spoken of by the several names of *Iatrosophista*, *Protospatarius*, or *Protospatharius*, and *Monachus** who wrote, according to Fabricius and Lambecius, in the reign of the Emperor Heraclius, or between the years 610 and 641, and is supposed by some to have been a monk, though, how this is to be reconciled with the epithet usually given to him, and implying that he was a gladiator by profession, seems rather difficult to comprehend, even in relation to those ages of clerical inconsistency. It is to this writer that one of the manuscript copies of the work on Fevers, written by Palladius, (who lived near the time of Alexander,) and preserved in the Imperial library at Vienna, is erroneously ascribed. Theophilus is the first who has written expressly on the subject of urine, and given a rational explanation of the

* The epithets *Protospatharius*, or Chief Gladiator, and *Monachus* or Monk, seem so very inconsistent as to excite a suspicion that they belonged to two distinct individuals.

causes of its variations of colour and consistence, as well as the prognoses to be drawn from them. He has also written on the subject of the alvine evacuations. A treatise on the pulse, which has been translated under the name of Philaretus, is ascribed, in the MS. copy preserved in the Vienna Library, to Theophilus, and with more apparent reason than Palladius's book on fevers. It is, however, a mere epitome of Galen's book on the same subject. Besides these works, Theophilus was the author of five books *Περὶ κατασκευῆς ἀνθρώπου σωματός*, on the structure of the human frame, of which several editions have been published both in Greek and Latin, at Paris, Venice, Basle, and other places. This work also is for the most part an epitome of Galen's treatise "De usu partium," executed, however, with considerable ability, and containing many original facts and observations—as, for example, he is the first to trace the first pair, or olfactory, nerves from their origin*

* The olfactory nerve is soft and pulpy, and soon decays by putrefaction, and thus long escaped the observation of anatomists: it is of a triangular shape, adapted to the sulcus in which it lies, and takes its origin from three medullary trunks: firstly, from the corpus striatum; secondly, from the medullary matter of the anterior lobe: and thirdly, from the anterior and under part of the corpus callosum: it adheres firmly to the lower surface of the anterior lobe of the brain. Towards its fore-part it expands into a bulbous oval lobe, consisting of a semi-transparent cerebritous substance, lying upon the cribriform plate of the ethmoid bone, through the minute perforations of which it descends in numerous filaments, which expand within the nostril upon the Schneiderian membrane.

in the brain to their expansion upon the membrane lining the nostrils, so as to form the organ of smell. He likewise pointed out the circumstance of two muscles being required for shutting, while one alone answers for opening the eyelids : and was the first to demonstrate the strong ligament which binds together all the articulations of the vertebrae, and prevents their dislocation; of which he speaks in the following terms. " But, as it is necessary for a man to bend himself backwards and forwards, it did not appear sufficient to the good Providence of God to furnish each particular articulation of the vertebrae with proper ligaments, which, however, are highly useful and necessary; but, in addition to these, there is, on the outside of the spine, a ligament of a yellow colour, and nervo-cartilaginous substance, which serves as a common ligament to all the articulations of the vertebrae*." A Latin translation of this work, by Junius Paulus Crassus, was published at Paris in 1540.

Theophilus likewise wrote a book of Commentaries upon the Aphorisms of Hippocrates, which is executed with judgment, and displays an equal acquaintance with the opinions of Aristotle and the doctrines of Hippocrates.

[illegible]

These Aphorisms are printed under the name of Philotheus, which appears to be a mere literal alteration of the true name of the writer, and not the name of a distinct author: and, although the Manuscripts in the Imperial Library at Vienna ascribe this production to Stephen, we have already seen, in the case of Palladius, how little reliance is to be placed upon such authority.

Previously to dismissing the history of this period, and the consideration of those writers who alone have the slightest pretensions to rank as classical among the medical authors of Greece, a short retrospect of the progress of the science of Medicine, from the days of Galen to the capture of Alexandria, (the close of the year 640,) will not form an uninteresting or unprofitable termination of this chapter.

An opinion has long prevailed, but certainly without sufficient foundation, that no improvement in the science of medicine took place for a period of more than twelve hundred years after the death of Galen. The origin of this erroneous opinion is to be found in the circumstance of the various writers, who succeeded that great man, having confined themselves chiefly to transcribing and commenting upon his works, to the exclusion of almost every original idea or attempted discovery. A critical examination of their writings, however, and a careful comparison of them with the productions of Galen, will abundantly prove that the charge brought against his successors is far from being strictly true—

for we have already seen, in the course of the present chapter, that the works of Oribasius, of Aëtius, of Palladius, and of Paulus, contain a vast variety of new and original facts, observations, and reasonings, not only not borrowed with servility from Galen or the ancients, but often even in direct contradiction of their opinions: while Alexander of Trallis was, in the strictest sense of the word, an original and an instructive writer. The amalgamation of all the sects into one, which the Genius of Galen so completely effected, that no distinctions of this sort can be traced after his time among the Professors of Medicine, had the happy effect of checking that absurd propensity to indulge in visionary speculations, and fabricate cobweb theories, which, in the days of the Dogmatists, and the Empirics, the Methodists, and the Eclectics, tended rather to embarrass than to promote science, to foster injurious vanity rather than conduce to valuable discovery. But in proportion as the spirit of theorizing was repressed, the attention of practitioners was directed to the more substantially useful parts of the profession, which, though not equally attractive with the glittering tinsel of fine-spun speculations, were far more conducive to the true interests of medical practice, and the real improvement of medical knowledge. And, in corroboration of this assertion, we shall find, in the works of the authors just mentioned, descriptions of complaints unnoticed by their predecessors, and important improvements in the practice of treating those already known; as well

as accounts of new medicines introduced into practice, and large additions to the operations of Surgery. From the enumeration furnished by the industry of Le Clerc, we are enabled to discover that the number of complaints spoken of or described by Hippocrates considerably exceeds that to be found in Celsus, while that contained in Galen hardly exhibits an increase. But, upon a comparison of *Ætius* with Galen, we find he has augmented the catalogue of human maladies full one third. To take, as an example, the disorders of the eyes, we find that while Celsus describes only *thirteen* which require surgical aid, and Galen still fewer, *Ætius* enumerates no less than *thirty*, in which he recommends surgical applications, and in *one* only of these he describes no less than three distinct methods of operating. His Book on this subject, which is one of the longest in his works, and confined to the consideration of disorders of the eyes, contains fewer quotations from other writers than are to be found in other parts of his works; whence it is evident, that its contents are chiefly the result of his own experience. Alexander was the first to recommend the practice of cutting short the paroxysms of intermittents by the exhibition of emetics immediately before the accession of the fit; and explains the true nature of the origin of Phrenitis, of which none of his predecessors had any correct idea; while we are indebted to Paulus, who wrote in the seventh century, for the first account of the purgative properties of the true Rhubarb, as well as for several improve-

ments in the operations of Surgery. Hence it must be sufficiently evident, that, during the first seven centuries at least, the science of medicine was by no means stationary—and that, if, from that period to the dawn of that great and glorious revolution, which emancipated the human faculties from the galling yoke of bigotry and superstition, the progress of medical improvement was small in its amount, and worthless in its value, this science only participated in the common lot of human knowledge—and of every elegant or beneficial acquisition.

One vast eclipse the human mind o'erspread—
And learning slumbered with the mighty dead.

CHAPTER IV.

Inquiry into the Origin of the Small Pox ; reported, by the Chinese, to have commenced about the year of the world 2736, or about 1212 years before the birth of Christ ; and stated, by an Arabic MS., to have made its first appearance in Arabia in the year 572—Capture of Alexandria in 640, and reported destruction of its Library : improbability of this account, and reasons for doubting its truth—Celebrity of Alexandria, as a seat of Learning, long after its Capture—Machomet, the author of Medical Aphorisms—Theodorus and Theodorus, eminent teachers of Medicine at Alexandria in the Seventh Century—Elkenanus—Patriarch of Alexandria called in to attend the favourite Concubine of the Caliph Haroun Al Raschid—Basorquius makes a valuable and extensive collection of MSS. preserved to this day in the Imperial Library at Vienna—The first versions of the Greek Writers made into Syriac, and thence rendered into Arabic—Aaron, of Alexandria, compiles the *Pandects* in Syriac ; these afterwards translated into Arabic by Maserjawanus, a Jewish Physician—The Caliph Almanzor, a liberal patron of Science ; founds the City of Bagdad ; his liberality to George Bachtishua—Nisabur, the Capital of Chorassan, founded by Sapor ; a distinguished School of Medicine—Medical knowledge confined to particular families—Death of the Caliph Almanzor—Homer, error of Abi Oshara respecting the time of his birth—His celebrity as a Translator—Reign of the Caliph Haroun Al Raschid—Mesue, educated by Gabriel, the son of George Bachtishua ; held in high estimation by all the Caliphs under whom he lived ; reasons for suspecting the works ascribed to him to be spurious—Anecdote of the Caliph Al Raschid—Zeal of the Caliph Almanon in the cause of Science—Serapion—Rhazes—Avicenna—Haly Abbas—Abdalatif—State of Medicine in Spain—Avenzoar, his account of the Bezoar stone—Averrhoes—Allucasis ; obscurity of his history ; identified with Alzaravius—General Observations on the State of Medicine among the Arabians.

BEFORE we proceed to speak of the fall of Alexandria, or the influence which that memorable event exerted over the literature of Europe, it may not be improper to pause a little for the

purpose of noticing the first recorded appearance of that dreadful scourge, the Small Pox, which is generally believed to have commenced its ravages about this period.

We have already seen, when considering the state of medicine among the Chinese, that, although that singular people adopt the prevailing opinion with respect to the Small Pox, that its existence has not been commensurate with that of the human race, they assign to its origin a very remote antiquity, exceeding three thousand years* at the same time that they designate it by a name†, which seems to imply a suspicion at least that the seeds of the complaint were implanted in the constitution of man at the period of his first formation, and descended as an heirloom from Adam to his latest posterity. But the records of the Chinese partake too much of the apocryphal character of romance to furnish materials for serious argument, or substantial data for any thing like credible calculation.

The earliest mention of this complaint, upon which reliance can be placed, is an ancient Arabic MS. preserved in the public library at Leyden, in which Dr. John James Reiske says he read the following words: "This year, in fine, the Small Pox and Measles made their first appearance in Arabia"‡; the year alluded to being that of the

* Above twenty years before the commencement of the siege of Troy.

† *Tai-tou*, or Poison of the mother's milk.

‡ *Hic demum anno comparuerunt primum in terris Arabum Variolæ et Morbilli*

Reiske, *Disp. Inaug. Lugd. Bat. 1746.*

birth of Mahomet, or the year 572 of the Christian *Æra*. The coincidence between these two recorded events, the origin of one of the severest moral as well as physical scourges which have desolated the world in the same year, is too singular to escape the notice of the most inobservant, or not to excite a suspicion that the Arabic MS. examined by Dr. Reiske was the cunning forgery of some modern hand, desirous of affixing the odium of the commencement of two of the most fatal maladies under which humanity is doomed to suffer, in the same year which gave birth to the greatest impostor who ever appeared on earth, and the severest moral and political scourge which was ever suffered to torment the inhabitants of the world. The first writer who appears to have given any systematic account of this formidable malady, with the diagnostics of the several varieties, and their method of treatment, is Aaron, a native of Alexandria, and a learned presbyter and physician, who flourished about half a century after the period assigned for its first appearance in Arabia by the MS. quoted by Dr. Reiske, or about the year 621, and must have been nearly contemporary with Paulus. From this circumstance Dr. Freind is led, and not without reason, to conjecture that its first appearance was in Egypt*, as the oldest traditions

* Ex antiquissimis, quæ supersunt, Variolarum traditionibus, hæc in Egypto primum, Omaris tempore, qui Mahometi successit, apparuisse comperimus; etsi cum hæc Græci prorsus ignoraverint, Arabes sine dubio morbum illuc è sua gente adrexe rint, quem ipsi fortasse antea a remotioribus Orientis

allege; but he imputes its introduction there to the Arabians, who brought it with them, as he supposes, from the more distant countries of the East—the most ancient of the Arabian writers not speaking of it as a *new* disease. This account of Dr. Freind's, coupled with the statement of the Chinese, gives an air of probability to the latter, and leaves room to believe that the Small Pox has existed, ever since the period of the fall, among those nations who still inhabit the primitive seats of the human race; whence it might have been introduced into China by some chance traveller, or some commercial package, about the time they mention; though the infrequency of intercourse between the nations and colonies of Europe, and those Oriental nations whom they were accustomed to regard as Barbarians, preserved the former from the visitations of this scourge, till after the conquests of the Saracens had spread the contagion of Variola and the impostures of the Koran over the face of the earth. The restless and indomitable genius of the Arabs, leading them to explore other regions of the East besides that which they inhabited themselves, brought them doubtless at an early period into contact with those nations among whom the *fomes* of Variola had probably subsisted from the epoch of the flood, and thus occasioned its appearance among the Saracens

gentibus suscepissent. Horum enim antiquissimi scriptores
de eo non ita loquuntur, quasi recentior actio

Freind Hist. Med. p. 275.

about the period spoken of in the MS. quoted by Dr. Reiske, while their proximity to Alexandria will sufficiently account for its presence there in the days of Aaron. Small Pox being the result of a specific contagion, and not arising, as far as our present knowledge goes, from any local cause, or peculiar effluvia, can hardly be supposed to have started suddenly into existence, like the plague, or other contagious disorders, which clearly result from peculiar miasmata; but appears, like the Measles and similar complaints, to which the system is, under ordinary circumstances, but once subject, to be the result of some constitutional change, which Providence has seen it right for the posterity of Adam to undergo once during life—and from whose subsequent attacks they are most usually protected. The chief difficulty attending this supposition is that arising from the perfect exemption of Europe, for upwards of four thousand years, from this dreadful scourge—had it, like the sentence of death pronounced upon Adam and his posterity at the time of the fall, formed part of the original penalty imposed upon men for the transgression of their first parents, we might reasonably conclude that no age or country would have been free from its visitations. Why Europe was so long exempted, or what is the nature of that constitutional change which, in ordinary cases at least, renders us secure against a second visitation?—are questions which He alone who governs every thing by His will can answer, and which he may at some future period in His good pleasure reveal: all that

is at present contended for is merely the improbability that this complaint is of the recent origin generally supposed, or that the silence of the most ancient Greek or Arabian writers should be taken as any proof of the actual non-existence of either the Small Pox or Measles previously to the year 572, the date assigned to their first appearance in Arabia, in the MS. already spoken of.

Dismissing, however, speculations which can be productive of no practical utility, it will be sufficient in this place to observe, that it was to the restless spirit of the Arabians that the world was indebted for the wide and rapid devastations of this fearful scourge, which had slumbered so long innocuous within their narrow limits, till the fiery zeal of their impostor prophet sent them forth, armed with the sword of conquest in one hand, and the Koran in the other, to pour, with the resistless fury of an Alpine avalanche, over the panic-stricken nations of Europe, of Africa, and of Asia—planting the emerald standard of their faith, and diffusing the equally pestilential contagion of Variola, from the coasts of Syria to the pillars of Hercules; a task which Providence permitted them to accomplish most effectually in the singularly short space of less than thirty years.

The downfall of the Roman empire, which took place at the close of the fifth century, together with the torrent of barbarians who, bursting from their icy barriers in the north, poured themselves, with irresistible fury, over the smiling plains of the south, had already overwhelmed

literature in the West, and dispersed many of the most learned men of Europe among the nations of the East—but it was the capture of Alexandria which put the finishing blow to the literature of Europe; and transferred the seat of learning, for a time, from beneath the shadow of the Cross to the empire of the Crescent—from the classic shores of Italy and of Greece, to the warlike followers of Mahomet and the fiery descendants of Ishmael. The capture of Alexandria followed within three years after the invasion of Egypt by Amrou, who commanded the troops of the Caliph Omar, in the year 638, and, by rendering the Saracens masters of one of the chief, and indeed only surviving seat of ancient learning, brought the Arabians more intimately acquainted with the books and literature of the Europeans, and thus contributed to the preservation of that holy spark which, but for them, would, at that stormy period, have been wholly extinguished. The intelligence of this capture, and of the erection of the standard of the prophet on the towers of Alexandria, which took place on the 22d of December 640, hastened the death of the Emperor Heraclius, (under whose calamitous reign this brightest jewel was plucked from the imperial diadem,) and contributed, along with the incursions of the Vandals and the revival of Superstition, to hasten the decline of learning in the West, and transfer the knowledge, the books, and the philosophers, of Europe to the shores of Asia.

The capture of Alexandria has been long

believed, upon the authority of the Dynasties of Abulpharagius, to have been followed by the destruction of its literary treasures, in conformity, as that writer acquaints us, with the insensate and fanatic order of the reigning Caliph Omar, who is represented as having declared, in reply to a dispatch from his general, Amrou, soliciting, at the request of John Philoponus*, the grammarian, a gift of the celebrated library founded by the Ptolemies, that "If these writings of the Greeks agree with the Koran, or Book of God, they are useless and need not be preserved; if they disagree, they are pernicious and ought to be destroyed." Such is the account given of this strange transaction by a writer † who was not born before the year 1226, or 586 years after the transaction he records, and of which not the slightest mention is to be found in the annals either of Eutychius, the Patriarch, or Elnacim, the Historian of the Saracens, both of whom were Christians, both natives of Egypt, and both born soon after the triumph of the Saracens, long before even the birth of Abulpharagius,

* John Philoponus, a celebrated Peripatetic philosopher, and distinguished for his love of learning, was born at Alexandria, about the end of the sixth, or beginning of the seventh century: he wrote commentaries on several of Aristotle's works.

† Gregory Abulpharagius was the son of Aaron, a Physician and Prelate of Armenia, a descendant of the same who has been already noticed as the first writer who speaks of the Small Pox. Gregory was born at Mahana, in the year 1226, and was chosen Primate of the Jacobites in 1266, which office he filled twenty years. He wrote an Epitome of Universal History, which was published in 1663, with a Latin translation by Dr. Pocock.

and consequently far more likely to be well informed upon the subject. Eutychius*, the oldest of these two writers, has introduced into his history a minute account of the siege and capture of Alexandria, in which it can hardly be believed he would have overlooked so important a transaction, and one which must have exerted so fatal an influence upon literature, as the destruction of this noble library, had the story been generally believed in his day—especially when the magnitude of the collection was such that, (as Abulpharagius acquaints us,) although the volumes were distributed to the four thousand baths of the city, as fuel for heating the water, six months were hardly sufficient to complete their destruction. The silence, therefore, of two such writers as Eutychius and Elmacin†, who must have been acquainted with the fact, if true, and to whom we cannot impute any possible motive for concealing or suppressing it, must be allowed to weigh considerably against the testimony of Abulpharagius,

* Eutychius was Patriarch of Alexandria, and flourished about the ninth century. An edition of his *Annals*, accompanied by a Latin translation by Dr. Pocock, was published at Oxford in 1658. Eutychius must not be confounded with Eutyches, who was Archimandrite, or Abbot, of a Monastery at Constantinople, where he founded the heretical sect named after him, in 448.

† George Elmazin flourished in the early part of the twelfth century. His *History of the Saracens* was translated by Eberhard, and published in folio at Leyden, in 1625. It commences with Mahomet, and ends with the year 1131. He was the son of Yasser Al Yumal, who was forty-five years Secretary to the Council of War under the Sultans of Egypt, to which office George, although a Christian, succeeded on the death of his father in 1235.

notwithstanding the reputation which he enjoys as a historian of unquestionable veracity, but who, nevertheless, was liable to be led into error by the misrepresentations of his contemporaries, and whose evidence therefore must be received with considerable suspicion on this point. Indeed, as Gibbon * very naturally remarks, the fact is truly marvellous, and so utterly repugnant to what ought to have been expected from rational beings, as well as so diametrically opposite to the sound and orthodox precept † of the Mahommedan casuists, that we are hardly justified in giving credit to it upon the unsupported evidence of a solitary individual, however credible in other respects.

But, whether we admit the solitary though positive evidence of Abulpharagius, who wrote at a distant period, or the negative evidence of Eutychius and Elmacin, Christians and natives of Egypt, along with that of Abulfeda, Murtadi, and a host of Saracen writers, whose testimony may be deemed more questionable, we have the most satisfactory proofs of the exaggeration, at least, of Abulpharagius' account, in the fact of a vast multitude of the most valuable works of

* Hist. vol. ix. p. 440. See also Renaudot, Hist. Alex. Patriarch. p. 170.

† The most approved writers of the Mahommedans admit, and even declare in the most explicit terms, that "the religious books of the Jews and Christians which are acquired by right of war should never be committed to the flames, and the works of profane science, historians, or poets, physicians or philosophers, may be lawfully applied to the use of the *kalibai*." See Renaudot, *de Jure Militari Mohammedanorum*, in the 3rd vol. of *Dissertationes*, p. 37.

the ancients having survived this apocryphal destruction ; not only, it is said, through the good sense and liberality of the more enlightened among the conquerors, but also through the ardent zeal and unquenchable perseverance of a multitude of men of letters, among whom John Philoponus, or John the Grammarian, was not the least conspicuous ; his holy ardour, indeed, was far from being repressed by the failure of his reported intercession for the preservation of the Library, the ample treasures of which he is said to have solicited from the Caliph as a boon for himself. The manuscripts, which were thus preserved, were transcribed and dispersed in various directions, in the same manner as happened afterwards, on the capture of Constantinople in the year 1453. What must have contributed in no small degree to the preservation of these treasures at such a time was the strong attachment of the Arab conquerors to medical studies, and the fact *, if we believe a MS. in the Bodleian Library, of their prophet's having been much addicted to the study of Medicine, and having himself written a book of Aphorisms on the subject, which has not, however, survived to our days. We also find that Alexandria retained its celebrity as a school of science, especially medical science, for a considerable period after its change of masters : since even Abulpharagius himself, whom we cannot suspect of any undue partiality for the Saracens, speaks of Theodunus and Theodocus, two illustrious physicians and

* Friend, *Hist. Med. latinæ conversæ*, Pars II. p. 224.

professors *, who flourished as late as the close of the seventh century, and appear, from all that we can collect respecting them, to have been natives of Alexandria: and Abi Oshaia, (who wrote the lives of a number of physicians,) speaking of Elkenanus, informs us that he was originally a Christian, and a teacher in the schools of Alexandria, but, through the persuasions of the Caliph Abdi Aziz, afterwards became a convert to the religion of Mahomet: and we likewise learn, from the history of that period, that literature survived at Alexandria even the transfer of the schools to Antioch and Harran, whence the knowledge of Medicine spread to other parts of the Saracenic dominions; for, such was the reputation of the Patriarch of Alexandria † for medical skill, as late as the commencement of the ninth century, that he was summoned by the Caliph Haroun Al Raschid ‡ to the sick bed of one of his favourite concubines. Hence it is sufficiently evident that the effect produced by the capture of Alexandria upon the literature of Europe must have been greatly overrated by the various historians who have handed the account down to us: especially

* Some pupils of these professors, or, at least, of Theodorus, were still living in the year 704, in which the family of Abbas made themselves masters of the Empire.

† Elmaceu Saracen. Hist. p. 123.

‡ Haroun Al Raschid, of whom further mention will yet be made, was the fifth Caliph in succession of the House of Abbas, and was, from all accounts, a virtuous and enlightened prince. So high was the state of improvement of the Arts in his time, that we are informed he made a present of a striking clock, with springs and wheels, to the Emperor Charlemagne: this clock was the first ever seen in France, or probably in Europe.

as we find that, even after the lapse of a century from that event, Busquequius was able to collect, chiefly at Constantinople, an enormous number of the most valuable MSS., principally on Medicine, which he marked, as we learn from Lambecius, with his own hand, in testimony of their being genuine; and these very MSS. constitute, even at the present day, one of the most valuable portions of the literary treasures accumulated in the Imperial Library at Vienna.

The first versions which were made of the Greek writers, after the fall of Alexandria, appear to have been in the Syriac language; the Syrians being, for the most part, Christians, and more learned than the Arabians. Thus we find that Aaron *, a Presbyter of Alexandria, who flourished in the time of Mahomet, about the year 622, and of whom mention has been already made, when speaking of the introduction of the Small Pox, was the author of thirty books, chiefly compiled from the Greeks, and named by him, according to the Syriac idiom, Pandects.

The first Arabic translator of the Greek writers, (with whom the Arabians became acquainted through the medium of the Syriac versions,) was a Jewish physician of the name of Maserjawaihus †, a native of Syria, who published an Arabic version of these Pandects, about the year 683. And this

* Abulphariz. 99. Aaron died about the year 665 or 666. Haly Abbas, in his History, finds fault with him for being too concise in his remarks upon the natural and non-natural, silent altogether respecting surgery, &c., and lame and obscure in other things.

† Abulph. 127.

example of translating from the Syriac, rather than directly from the Greek, was followed by the majority of succeeding translators. Shortly after this period, Literature in Arabia received a fresh stimulus from the encouragement held out by the Caliph Almanzor, the second prince of the house of Abbas, a zealous promoter of every useful science, especially that of Astronomy. This Prince, having, with the aid of the Astrologers*, fixed upon a proper site, founded the city of Bagdad†, in the year 767; and, from its agreeable situation, made it the seat of the Caliphs. Almanzor, who was distinguished by the epithet of Victorious, being taken dangerously ill, sent for George Bachtishua‡, an Indian physician, professing the Christian faith, and deeply versed both in the Persian and Arabic languages, by whom, at the Caliph's request, a multitude of translations were made from the best medical writers. Bachtishua had been educated and resided at Jondisabur, or Nisabur, the Capital of Chorassan; a city founded about the year 272, by Sapor, King of Persia, in honour of his Queen, who was a daughter of the Roman Emperor Aurelian. In this city it is probable that Medical Science had flourished, without interruption, almost from the date of its foundation to the days of Bachtishua. Out of compliment to his daughter, Aurelian sent to Sapor a number of Greek Physicians, by whom a knowledge of

* Elmacen. 124. † Abulph. 141. ‡ Ib. 82 and 148.

medicine was introduced and disseminated throughout the East: to this circumstance it was most probably owing that Persia and the other regions of the East became the fountain from which Rhazes, Haly Abbas, Avicenna, and others of the more eminent of the Physicians and Writers of Arabia, drew their learning.

George Bachtishua was received most graciously by Almanzor, who, when at length the state of his health required his return home, not only loaded him with honours, but presented him, at his departure, with ten thousand pieces of gold.

At this time, as formerly in the days of Hippocrates, the science of Medicine was in a great degree confined to private families; thus we find it descending, for a number of successive generations, in the family of Bachtishua; for George brought up his son Gabriel to his own profession, in which he attained to the highest degree of celebrity, and was so successful in his practice that he cured Giafar, first counsellor to the Caliph Al Raschid, in three days, of an illness, which had baffled even the skill of his father, and afterwards restored a concubine of Al Raschid (who had been under the care of all the other physicians without advantage,) to the use of her arm, for which he was rewarded by the Caliph with five hundred thousand drachmæ, and the appointment of first Physician to that Monarch: and after him we find at least three or four generations of Bachtishuæ, in succession, all of

whom attained to high professional distinction, while many of them translated a great number of medical works into Syriac and Arabic.

The Caliph Almanzor, having died in his sixty-third year, on a pilgrimage to Mecca, was succeeded by Almodhus, in whose reign an elegant translation of the Iliad of Homer, into Syriac, was made by Theophilus of Edessa, a Maronite and a distinguished Astronomer.

Notwithstanding the progress made by the Arabians in literature, for the whole of which they were indebted to the Greeks, that language does not appear to have been fully understood among them before the time of Honain, a christian, who was born at Hira, about the year 764, or 20 years after the House of Abbas obtained the Caliphate. Abi Osbaia, indeed, who states that he attained to the age of a hundred years, fixes his birth in the year 664, but this is manifestly erroneous, as he indisputably did not flourish earlier than the accession of the House of Abbas, which took place only 20 years before the date assigned by Abi Osbaia to his death. Honain was not only master of Arabic and Greek, but was equally conversant with the Syriac, into which language he translated a number of works, chiefly on the subject of Medicine. Having been ill used by Meaue, he quitted Bagdad for a time in disgust, and travelled into Greece, or into countries inhabited by Greeks, where he resided about two years, during which he not only perfected himself in the Greek language, but made a rich collection of books, in

every department of science, with which he returned to Bagdad, whence, after a short stay, he removed to Bassorah, in Persia, where he made himself fully master of Arabic. Returning a second time to Bagdad, he acquired great reputation there by his skill in languages, and devoted his time chiefly to the translation of the Greek writers, among whose works were the seven books written by Paulus, into Arabic. Such was the celebrity to which he attained in this department of literature, that, like the learned Sergius, in the time of the Emperor Justinian, who has been so much extolled by the historian Agathias, he came at length to be distinguished as "*Honain the translator.*" There is a story, related by Abi Osbaia, of the Caliph Almanon having been visited in his dreams by an old man, who called himself Aristotle, when the Caliph demanding to know who Aristotle was, and being informed that he had been one of the most illustrious philosophers of Greece, he commanded Honain immediately to translate his works into Arabic, promising him, on the completion of his task, an equal weight of gold for every volume of his translation. Abi Osbaia, to whom we are indebted for these particulars respecting Honain, has devoted an entire chapter of his work to an account of the Arabic translators, of whom he enumerates no less than forty-six, who were chiefly occupied in translating the medical writers of the Greeks; but none of them approached in any degree to the reputation of Honain, whose translations uniformly maintained

the first rank. Honain, who must have been born during the Caliphate of Almanzor, flourished under those of Almodhus, Haroun Al Raschid, Mahomed Alomin, and Alinamon, under which last prince chiefly he appears to have been employed in the task of translation. If, as Abi Osbaia acquaints us, he attained to the age of 100 years, he must have survived Alinamon about twenty-four years, dying about the year 864. His luminous example was ably followed by his son Isaac and his grandson Hobaish, as well as by other members of this distinguished family, to whose literary labours the Arabians were principally indebted for the translations they possessed of the works of Aristotle, Hippocrates, and Galen.

In the year 792, the celebrated Haroun Al Raschid, the fifth Caliph in succession of the house of Abbas, ascended the throne of his ancestors, and distinguished himself as a zealous and munificent patron of literature and science. He adorned the city of Bagdad, which had been founded by Almanzor, with a multitude of Mosques, public schools, and hospitals; and thus set an example, which was long followed among the Arabians, of accompanying the foundation of every Mosque by the erection of a College, and an Hospital; a practice, which was most rigidly adhered to in Spain by the Moors, during the period of their occupying that country. During the reign of Haroun Al Raschid there flourished at Bagdad, where the Syriac was at this time the vernacular tongue, a distinguished medical

professor of the name of Mesue, who had a vast number of pupils, and was employed for upwards of forty years by this Prince and his successors in expounding and commenting upon the works of the ancient physicians. Mesue was a Christian of the Nestorian Sect, and born at Nisabur, the capital of Chorassan, where his father exercised the calling of a Druggist. He received his medical education under Gabriel, the son of Bachtishua, (of whom mention has been made already) by whom a hospital was given in charge to him; and, notwithstanding the censure pronounced against his medical practice by Haly Abbas, he is said to have surpassed the whole of his contemporaries in erudition, and enjoyed the favour and confidence of every Caliph under whom he lived. Of the high estimation in which he was held by the Caliph Haroun Al Raschid, we may form some judgment from the fact of his having been especially commissioned by that prince to collect and translate into Arabic, in one volume, all the Greek works which were to be met with either at Ancyra, or other towns in that part of Asia. Mesue wrote, according to some accounts, about 200 years later than Aaron, the author of the Pandects, and is represented by Haly Abbas as defective through the total want of order—speaking of the composition of medicines in his ninth book, and after that discussing the subject of the Naturals, without the slightest regard to methodic arrangement. From this critique, it would appear that the genuine works of Mesue, on the practice of Medicine, have been

lost; since those handed down to us under his name contain nothing at all corresponding with this description; to which should be added that they speak of Rhazes, who did not live until many years after the death of their reputed author. Abi Oshaia enumerates thirty-seven works of which Mesue was the author: in one of which he treats of Purgatives, and in another of Decoctions; these probably are genuine, and the others added, at a later period, by a different writer. Of his disagreement with his contemporary Honain, which occasioned the temporary secession of the latter from Bagdad, mention has been already made.

Notwithstanding the celebrity of Mesue and Honain, a tolerably correct estimate may be formed of the low ebb of medical knowledge at this period, from a fact recorded by Elmacin*, in his History of the Saracens, respecting a dangerous attack of Apoplexy under which the Caliph Al Raschid laboured in the year 842; when a consultation was held upon his case, at which a young but able physician of the distinguished family of Bahtishua alone had the courage to propose opening a vein, as the only effectual mode of removing the danger, which all the physicians present admitted to exist and to be urgent. This measure was strongly objected to by Mahomed Alomin, Haroun's eldest son and successor, but was ably and successfully advocated by his younger son Almamun, who main-

* Hist Sarac. p. 112.

tained that since all the physicians were agreed as to the peril of the case, which, if left to nature, must inevitably have a fatal termination, and one that could not be hastened, but might be prevented, by the abstraction of blood, the remedy proposed was most undoubtedly deserving of a trial. Thus supported, the advice of Bachtishua prevailed, and the operation was performed with the happiest effect; the Caliph being instantly relieved by the loss of blood, and living for a considerable time after—during which he manifested, as was natural, a stronger partiality for that son whose seasonable remonstrance had been the means of prolonging his life; and rewarded the bold, although youthful practitioner, who, (contrary to the opinion of so many men older, and, it might be presumed, more experienced than himself, and in opposition likewise to the avowed wishes of the heir-apparent to the throne,) had the courage to propose, and to perform, so novel an operation—not only by making him his body Physician, but also by settling upon him an annuity of a hundred thousand Drachmæ.

Haroun Al Raschid was succeeded, on his death, by his eldest son, of whose services in the cause of Science History has preserved no records which have descended to our days. The accession of his second son, Almamon, who came to the throne on the death of his elder brother, in the year 810, and was the seventh Caliph of the house of Abbas, gave a fresh impulse to the progress of improvement. This generous and enlightened

prince far, indeed, surpassed the whole of his predecessors in his exertions for restoring and propagating the various branches of learning. In the early days of the Moslem sway, while the sceptre continued in the House of Ommia, which held the Caliphate for 91 years, the Arabs applied themselves, (with the exception of medicine which was of too much importance to society to admit altogether of neglect,) almost exclusively to the refinement of their language, and to the study of the law. Previously, however, to the capture of Alexandria, which put them in possession of all the best medical works of the Greeks, the knowledge of medicine was confined to but a small number of practitioners, whose acquaintance with the science was of the most confined description, and was almost wholly empirical. Upon the expulsion of the Omniades, however, in 744, and the accession of the family of Abbas to the Caliphate, the Arabians, stimulated by the encouragement held out by the new Dynasty, roused themselves from the torpor in which they had too long indulged.

Almanzor, the second Caliph of this race, was, as we have already seen, the first who manifested a regard for science, and shewed a disposition to promote it. This prince, to a most accurate knowledge of law, united a strong predilection for Natural Philosophy, and especially for Astronomy, to which noble science he devoted himself with the most ardent zeal. Haroun Al Raschid emulated his predecessors, and, by enriching Bagdad with Schools and Hospitals,

contributed largely to the march of improvement. But it was reserved for his son Almanon, the seventh Caliph of that house, to complete the superstructure of which his predecessors had only laid the foundation. Almanon, with a zeal worthy of the cause in which he had embarked, and a sincerity rarely to be met with, not only laboured with the most indefatigable perseverance to collect the works of the learned from every quarter, but even applied in the most supplicatory terms to the Greek Emperors for a supply of such philosophical writings as they possessed. Having, by these means, obtained a vast collection of the most learned productions, and assembled a conclave of the most eminent translators he could procure, he placed the several works in their hands, stimulating their industry by prizes, and exciting their emulation by personally attending their prelections and discussions. Hurried away by his enthusiasm in the cause of science, and his ardour in the investigation of the mysteries of nature, he spurned the slavish confinement to the study of the mechanic arts, usual among the Turks, and plunged with the most energetic devotion into the midst of those pursuits which at once exercise the reason, improve the understanding, and refine the judgment. Among other branches of knowledge, the study of Astronomy obtained much of his attention, and he had instruments constructed for facilitating the more accurate observation of the celestial bodies, both at the observatory erected in Bagdad, and at that which was seated upon

the summit of Mount Cassius in the neighbourhood of Damascus. So little favourable was the Mohammedanism of those early days to ignorance, and so little unfriendly, at that period, was the Religion of the Saracens to the free development of the mental faculties!

Yet, amidst all these vast advantages—amidst all the encouragement given by the Monarchs, and all the facilities afforded for the acquisition of practical knowledge, by the establishment of schools and hospitals—the progress of medicine among the Arabians was far from commensurate with the efforts made for its advancement, and the works of even their best authors were little more than compilations from the writings of the Greeks, with little of originality, and almost less of improvement. Another circumstance, which cannot be sufficiently deplored, here forces itself upon our notice, and requires to be recorded, viz: that, with the exception of the five last books of Galen on Anatomy, there is nothing more to be found in the ancient Arabic versions than exists in the Greek copies which remain; whence it would appear, either that the Arabians had destroyed all they did not take the trouble to translate, or else, which is perhaps more probable, that the originals were either lost before their days, or destroyed in their first incursions. Their translations too, are far from possessing that accuracy which would render them faithful transcripts of the originals, and although their version of Dioscorides is made with more care than that of almost any other writer, they have so frequently

misunderstood the meaning of the author, that we are often at a loss to recognize Dioscorides in his Arabic disguise. With all these deductions from their merits, however, Science is still most deeply indebted to the labours of the Arabian writers, commentators, and translators since, who, if they contributed but little to the splendour of the flame, they at least preserved the sacred spark from utter extinction—while their works, if they exhibit the nobler metal somewhat deteriorated from its original brightness, at least contain the genuine ore unadulterated and unimpaired by admixture with any base alloy.

Contemporary, or nearly so, with the writers last spoken of, was Serapion, who flourished under, or near the time of, the Caliph Almamon. Some, indeed, place him in the eighth century, about the time of Leo Isaurus, the fourth Emperor of that name who reigned at Constantinople, and died in the year 780, a century at least earlier than the time fixed by Haly Abbas, who is, as we shall presently see, more to be depended upon, and places him after Mesue, and consequently towards the close of the ninth century; a date which is considerably strengthened by a reference to the writings of Serapion himself, in which we find him speaking of remedies employed by Gabrieli, the son of George Bachtishua, by Honain, and by Mesue, as well as a dentifrice named after the Caliph Almamon: from all which it is evident that the writer, unless singularly endowed with the gift of prophecy, must have followed, or at least been a contemporary,

with the persons of whom he speaks. Serapion appears to have been born somewhere in the Province of Chorassan, and to have been brought up at Nisabur. He wrote, it is probable, originally in Syriac, which appears to have been the vernacular tongue of those regions, and the language employed by Mesue and other writers of that period; a circumstance from which both Abulpharagius and Abi Oshain have called them Syrians, although born within the territories of Persia. Haly Abbas complains that Serapion confines himself to giving an account of the treatment of disease by diet, regimen, and internal remedies alone, without touching upon Surgery, or the art of preserving health: that he omits a number of complaints, such as Cancer of the eye; Chalazia, or Stye; closing of the eye-lids; loss of the eye-brows: Warts; Fungi; Elephantiasis; Aneurism; Varices; and disorders of the chest, &c. Haly likewise enumerates a multitude of other complaints, in which he accuses Serapion either of omissions or mistakes: as in arranging Gonorrhœa, and a fetid discharge from the mouth and nose, among the cutaneous or superficial affections. He also censures him for enumerating Variola among the Phlegmonous complaints or Abscesses, and for being obscure and unsatisfactory in his account of the method of treatment—errors into which, we shall find upon examination, even Haly Abbas, who is so clear-sighted in detecting them in another, has himself fallen—but which serve at the same time

to vouch for the authenticity of the works handed down to us as those of Serapion; a fact farther corroborated by the circumstance of their being quoted by name in the "*Continent*" of Rhazes, who brings forward passages which are word for word the same with those in the copies yet extant. This remark, however, applies only to those works on the Practice of Medicine which bear the name of Serapion, since those which treat of the *Materia Medica* and Pharmacy are evidently spurious, and, though said to be Serapion's, undoubtedly the production of a much more recent author; as is manifest from the names of the physicians spoken of in them. Serapion frequently borrows from Alexander of Trallis, (a writer who appears to have been but little known to the other Arabians,) especially in his account of the use of Hellebore, and the Armenian Stone in the cure of Melancholy, in which he copies word for word from Alexander, without, however, having the candour to acknowledge his authority.

Towards the close of the ninth, and beginning of the tenth century, flourished Rhazes, one of the most illustrious, and, at the same time, most voluminous, of the Arabian writers. He was born in the year 852, at Rei, a city of Persia, situated in or near the province of Chorassan, and was not improbably brought up at Nisabur, under some of the celebrated family of Bachtishua. He appears to have obtained the direction of a hospital in that district, whence he removed, at the

age of thirty, to Bagdad. We are told, however, by Dr. Freund*, that he did not apply himself to medical studies till a late period of his life. He is extolled by the Arabian writers in the most extravagant terms, as possessing a universal acquaintance with every branch of Science, and devoting himself with so much zeal to experimental knowledge during the course of a long life, that he acquired the name of the Experimenter: at length, losing his sight, he died in the year 932, at the advanced age of eighty years. These historians add, that he was indefatigable in his application to study, being incessantly employed either in reading or writing, and was reckoned the Galen of the Arabians. Such, indeed, was his reputation, that out of a hundred practitioners of eminence at that time resident in Bagdad, he alone was chosen physician to the celebrated hospital in that city. He is said to have travelled much, in his native country, Persia, especially, in pursuit of knowledge; and was employed professionally by a number of Princes, and among the rest by Almanzor, Lord of Chorassan, with whom he was in frequent correspondence. He had great intercourse with all the Botanists, Oculists, and Surgeons, of his day; and bore the reputation of being a most profound

* *Natus est Rei, quæ urbs in Iraco Persico, aut potius fortasse in provincia Chorassan, sita est, ibique nosocomio præfectus. Cum annos triginta haberet, in Urbem Bagdad migravit, verum ad Medicinæ studiâ non nisi sero animum appulit.*—Freund, *Hist. Med. Lat. conversa.* à Joh. Wieg p. 235.

Alchemist. Abi Osbaia enumerates no less than two hundred and twenty-six books of which he was the author, and which are undoubtedly genuine; among them are ten dedicated to Almanzor. Haly Abbas, indeed, takes no notice of them, although they were celebrated in his days, and he could not possibly have been ignorant of them—especially as they furnished the greater part of the materials out of which succeeding authors, and especially Avicenna, compiled their works. His "Continent," with which Haly Abbas finds considerable fault on account of the defects in its arrangement, appears to have been a kind of common-place book, in which he set down his observations, and extracts from the Greek writers, in the order in which they occurred to him, merely for his own private use, and without any regard to method or arrangement. This will sufficiently account for that disjointed, and as it were fortuitous, disposition of its contents, of which Haly complains; as well as for the incomplete manner in which most of the subjects treated of have been left. Besides his "Continent," Rhazes was the author, or, perhaps more correctly speaking, the compiler, of another work, which he intended as a complete Body, or rather Compendium, of Medicine, in which the materials of the "Continent" are more methodically arranged, divided into appropriate books and chapters, and digested into a uniform and correct system. This work is excellent in its kind—its ninth book, on the cure of diseases, especially; such indeed was the reputation which it enjoyed,

that it continued for ages to be the text book employed by most professors at their lectures. Celebrated, however, as this work deservedly was, an inspection of Dr. Freind's able analysis of its contents, subjoined in a note*, will shew how little claim it has to originality, and how completely it is made up of shreds and patches stolen from the Greeks, and especially from Galen and Hippocrates. A similar analysis of his "Continent," which appears to have been but the rude assemblage of materials, out of which the more methodical work was constructed,

• RHAZES.	GREEK AUTHORS.
Lib. i. On Anatomy	Hippoc. and Gal throughout Orb. Coll. 1. 21—25.
Lib. ii. De significatione Temperamentorum.	Hipp. de Hum Gal de Temp Orb Coll. 5. Aëtii, 4. Pauli, 1.
Lib. iii. De alimentis et simplicibus.	Hipp. de Diet Gal de Alim. et Facult. Supplie. Aëtii, 1, 2, 3 Syn. Orb. 2, 4 Coll. 1, 2, 3, 4, 5, 11, 12, 13, 15. Pauli, 1.
Lib. iv. De sanitate secund. rationem.	Gal. et Paul. 1 de tuend. Sant. Aët. 3.
Lib. v. De morbo cunctis, et de Cosmetis.	Gal. de comp. medicam. secundum loca, et cetera Græcis.
Lib. vi. De cunctis Peregrinantium.	
Lib. vii. On Surgery.	Hipp. passim Paul. 6. Syn. Orb. 7. Aëtii, 14, 15, et passim.
Lib. viii. On Poisons.	Pauli, 5.
Lib. ix. On the cure of all the parts.	Hipp. de morb. Gal. de loc. affect. Method. medendi et secund. locos Aëtii, 6, 7, 8, 9, 10, 11, 12. Syn. Orb. 8, 9. Pauli, 3, 4.
Lib. x. On Fevers.	Hipp. et Gal. de Crisibus. Gal. de Febr. method. 7. Poster de method. med. lib. 1. ad Glauconem Orb. Syn. 6. Aëtii, 5. Pauli, 2.

would necessarily afford a perfectly similar result; and, indeed, upon what better models, or from what better materials, could he have composed his works? The accumulation of knowledge is gradual and progressive; and perfect originality is one of those Utopian perfections which is only to be looked for among those writers who have the good fortune to enter upon untrodden ground; a species of advantage, which, as the world grows older, falls to the lot of but few. Every department of science becomes in time preoccupied, and each successive writer can do but little more than remodel that which has been already done by those who preceded him—contributing his mite to the general stock, and thus adding to its value, not only by swelling the bulk of the general mass, but also by the new light which each fresh contribution tends to throw upon facts previously ascertained. Were writers confined to the mere publication of their own personal observations, or discoveries, without connecting them with those previously made, and already upon record, the number of new writers, upon subjects of science especially, would be comparatively small, and their contributions comparatively valueless. Had Newton hesitated to avail himself of the labours of Archimedes and of Euclid, or Willdenow, of those of Linneus, and other labourers in the same field, where would have been the value of their productions? where the utility of their labours? It is not the mere accumulation of insulated facts which constitutes science, but the digestion of those facts

into a connected and intelligible system ; and he is the greatest benefactor to the cause of learning, who, taking up the works of his predecessors in any department of knowledge, illustrates them by his observations, and enriches them by the incorporation of his own discoveries. Hence the excellence of Rhazes, as a writer, is not fairly to be estimated from a comparison of the matters contained in his works with those in the works of the Greeks, but by the nature of the arrangement, and the novelty or importance of the observations. It should be likewise borne in mind, that Greek was not the language of Arabia, and that Rhazes, in rendering the knowledge of the Greeks accessible to his countrymen, through the medium of their own vernacular tongue—not merely by the tame process of mechanical translation, but by amalgamation with his own peculiar opinions, and juxtaposition with his own experience and observations—was an infinitely greater benefactor to his country, than if he had given either separately—and that, however unimportant his works may appear in the present advanced state of our knowledge, they were invaluable at the time, and in the country in which they were composed : while the fact of their so long continuing the text book of European lecturers furnishes additional proof of their merit.

Serapion appears to have adopted in his works a method of arrangement nearly similar to that which we find in the "Continent" of Rhazes ; and they both seem to have taken as their guides in this respect, *Ætius* and *Paulus*, who, com

mencing with diseases of the head, and proceeding in regular descent to the affections of other parts, distributed, under distinct heads, and in methodical order, the whole of the information scattered throughout the voluminous productions of Hippocrates and of Galen. Even Haly Abbas, with the exception of his plan of arrangement, which differs undoubtedly from that both of Serapion and of Rhazes, gives little which is not to be found in the works of his countrymen, or at least in those Greek writers already pointed out.

Rhazes is not only one of the most ancient and valuable writers among the Arabians, but merits so little the title of a mere "exscriptor," or compiler, which Freind* has bestowed upon him, that, (as even Freind himself, who evinces no very strong partiality for either the Arabians or their writings, is constrained to admit,) we find in his works much original matter, exhibiting the result of his own experience, and explaining his own views and opinions: and this, not in widely detached or insulated passages, but almost every where throughout his works: especially in the book in which he describes the remarkable cases which occurred in the course of his practice, and on which he reasons, as Freind, indeed, candidly admits, with a justice and precision, which bespeak great judgment in forming a prognosis in difficult or obscure cases; as, for example, in those irregular febrile attacks which so frequently terminate in abscess of the kidneys,

* Freind. Hist. Med. Lat. conversa à Joh. Wagar, M. D. p. 237.

dropsy of the uterus, or hepatic inflammation. His book on diseases of the joints likewise deserves attention, as containing many singular cases of cures effected by bleeding. One of these is too remarkable to be passed without notice. It was that of a woman of a robust habit, who suffered excruciating pain from a hard tumour upon her right wrist. Rhazes, in this case, opened the basilic vein and the vena Saphæna at once, taking from each half a pound of blood. At the end of three hours he loosened the bandage, and took the same quantity a second time. Then, having given the patient suitable nourishment, he opened the Saphæna a third time, after another interval of three hours, and took a fifth half-pound of blood, by means of which the pain was effectually subdued. He then follows up the history of his practice in this case by a copious detail of the motives which led him to adopt it, with a view to a determination to the lower extremities. Guided by the same reasoning, he pursued a similar practice, with similar success, in the cure of Sciatica. Following the advice of Archigenes in the treatment of this complaint, he directs the exhibition of powerfully irritating injections of Colocynth and nitre, so stimulant as to produce hæmorrhage, on which account they were considered the more efficacious by the Greek practitioners. He also concurred in opinion with Archigenes on the subject of emetics, which, he says, produce the most powerful revulsions in such obstinate cases, adding, however, a caution

derived from his own experience, respecting the necessity of deferring the use of purgatives till after the operation of the emetic has completely ended.

Rhazes describes the symptoms and progress of Hydrophobia, clearly and ably ; and relates a singular case of a man labouring under this complaint at the hospital. This man barked like a dog, complained of intolerable thirst, and, in lieu of dreading water, demanded it ; when, however, water was brought to him, he rejected it with loathing, on the plea of its being polluted with the filth of the intestines of dogs and cats, and called for clean water, which was rejected on a similar plea, when brought, he disputing with the attendants in an outrageous and angry manner.

Rhazes is the first writer of the ancients who has treated expressly of the diseases of childhood. He has also left an account of various complaints either peculiar to the East, or very prevalent there ; as the *Ignis Persicus*, or *Erysipelas* ; *Vena Medinensis**, or Guinea Worm, &c. He has also left us a copious treatise on the Small Pox and Measles, a translation of which has been given by the late learned and scientific Dr. Mead† — and is the first to notice the *Spina ventosa*, or caries of the internal surface of a

* So called from the frequency of its occurrence in the vicinity of Mecca and Medina.

† The Medical Works of Richard Mead, M. D. Soc. Dubl. 1767. p. 268.

bone, accompanied with a pungent pain and tumour—which appears to have been a new complaint among the Arabians, and is one to which children principally are subject, although adults are by no means exempted from it. It is singular that, notwithstanding the full descriptions of this malady, given both by Rhazes and Avicenna, hardly one of the voluminous commentators upon the latter author has said any thing worth recording upon the subject.

Next in the order of those whose works have reached to our days is Avicenna, the illustrious son of Haly, who was born at Bochara, in the Province of Chorassan, about the year 980. He applied himself almost from infancy to the study of Mathematics and Natural Philosophy, with so much ardour, that, if we believe the statements of his pupil Sorsanus, he had gone through the whole of Euclid's Elements, together with a variety of other works on the higher branches of Mathematics, before he had completed his sixteenth year: after which, he devoted himself with equal zeal to the pursuit of Medicine, wherein he made such progress, that he soon became as eminent for his skill in Medicine, as for his proficiency in other branches of science. He resided chiefly in the city of Ispahan, and was accused by the Arabs of an immoderate indulgence in pleasure, which subjected him to a variety of complaints, whence it became proverbial among them to say, that neither the study of Philosophy contributed to virtue, nor that of Medicine to the preservation of health. He died in the year 1036,

at the age of only 56, and was interred at the city of Hamadan. Various erroneous accounts are extant as to the country and age of Avicenna, some of which represent him as a native of Spain, and a pupil of Avenzoar—an account, not only destitute of foundation, but unsupported even by probability, since Avenzoar himself speaks of him as his predecessor, and extols him for his learning: while others represent him as having been born at Edessa, a city of Syria, in the year 1145, above a century after his death. Such was the celebrity to which Avicenna attained, that he rose, as History informs us, to the post of Vizier; whence some of the moderns have fancied him a Sovereign Prince, though, whether of Bithynia, or of Cordova, in Spain, they are by no means agreed. Avicenna's great work was entitled the "Canon," and such was its reputation throughout Asia, that it was epitomized and commented upon by a multitude of Arabian writers, during the twelfth and thirteenth centuries: so celebrated was it in Europe even at an earlier period, that no other doctrines obtained currency in any of the schools of medicine than those contained in this work, which thus continued to maintain its ascendancy in Europe until after the revival of letters. Yet, notwithstanding this wide and lasting reputation, little can be found in the "Canon" of Avicenna, which is not taken with a very trifling alteration from Galen, from Rhazes, or from his contemporary, Haly Abbas. Avicenna has needlessly multiplied the symptoms of disease, and frequently confounded

with the primary symptoms those which have no necessary connexion with the principal complaint.

About the same time with Avicenna, flourished Haly Abbas, a writer who has not only left us the fullest and most ancient account of the state of Medicine among the Arabs, but also the most copious history of the medical writers of that people which we possess. He was a man of profound learning for the age in which he lived, and from this circumstance obtained the surname of *Magus*. About the year 980, he wrote a voluminous work, designed to be a complete system of Medicine, which he called "*Alma-licus*," or the *Royal work*, and inscribed, according to the oriental custom, with a magnificent dedication, to the Caliph Adad'odaula. This work is chiefly composed of materials borrowed from Galen and the other Greek writers, but arranged in a more perspicuous and intelligible order than the "*Canon*" of Avicenna, which has been already spoken of. It was translated into Latin in the year 1127, by Stephen, of Antioch, whose translation is yet extant. It has, indeed, been ascribed by some to Isaac the Jew, and the title of "*Pantechni*," or "*The Completion of Medicine*," given to it; and it must be admitted, that the work of Haly Abbas contains many passages which correspond closely with those quoted by Rhazes, as extracts from the work of Isaac: but this coincidence may be accounted for upon the supposition of the mate-

rials of both having been derived from one common source, without asfixing, to the production of Haly, a charge of piracy from the labours of Isaac.

The reason assigned by Haly Abbas for undertaking this work is the inadequacy of all the existing works upon the subject to supply the requisite information, and he even includes Paulus, Oribasius, Galen, and Hippocrates, in this sweeping charge of defectiveness. Respecting *Ætius* he is silent; but whether from design, from ignorance, or from inadvertence, it would, perhaps, be difficult to decide. Coming down to those writers who were nearer his own time, he censures them almost without exception—commencing with Aaron, of whom mention has been already made at the commencement of this chapter, and of whom he says that he is too concise on the subject of the *Naturals* and *Non-Naturals*, states little or nothing respecting *Surgery*, or the art of preserving health, and is altogether lame and defective when compared with *Serapion*. But the critiques of Haly Abbas have been already incorporated in the accounts given of those writers whom he has spoken of, and need not consequently be repeated here.

Abdallatif, or Abdollatif, another Arabian physician and historian, whose account of Egypt supplies a valuable link for connecting ancient with modern history, merits some little notice here on account of his distinguished talents. He was born, as we are informed, at Bagdad, about

the year 1161; and studied in his youth grammar, rhetoric, history, poetry, and the Mahometan law. He commenced his travels about the year 1180, being then twenty-eight years of age, and, visiting Damascus, overcame the celebrated Al-kendi, a philosopher of high reputation, in debate; from thence he proceeded to Jerusalem, and afterwards to Egypt, where he formed a friendship with Maimonides, whose talents obtained for him the title of the Eagle of Doctors. After the peace between Saladin and the Christians, he waited on that Prince at Jerusalem, and was received most graciously: while there, he delivered public lectures in the temple. Returning a third time to Damascus, he gave lectures on various subjects, which were numerous attended. After this he spent several years travelling in various countries, and practising physic at different courts. He, at length, died at Bagdad, the place of his nativity, which he had revisited for the purpose of presenting his works to the Caliph, in the year 1231. Of one hundred and fifty works on medicine and other subjects, which he is said to have left behind him, his Account of Egypt, the MS. of which Dr. Pocock brought to Europe, has alone survived the destructive hand of time: this was published, along with a Latin translation by Dr. White, in 1800; and, in 1810, a French translation was published at Paris.

On the accession of the House of Abbas, in the year 744, to the seat of the Caliphs, Abdalrhamon, the son of Moavia, of the exiled house of Omnia,

fled to Spain, in which the Saracens had established their dominion some years before, and was received and acknowledged by them as the true and legitimate Caliph, in opposition to the House of Abbas, by which he had been expelled from his paternal throne. From the period of this schism, an almost inveterate animosity commenced between the Arabians of the East and their brethren in the West, which not only occasioned the latter to throw off their dependence upon their parent land, but to break off, at the same time, almost the whole of the intercourse, commercial as well as friendly, which had subsisted between them. This schism, however, had little, or indeed no influence, upon the progress of literature, which we find reviving and flourishing with even more than its former vigour beneath the silver crescent of the Moors. Thus did the followers of Mahomet repair the wrongs inflicted upon Europe by her own sons; and it is to the children of the desert we are indebted for the first attempt to rekindle in Europe that holy flame, which the madness of civil discord, and the blindness of papal ignorance, had extinguished since the fall of Alexandria, and to raise literature to a higher pitch of excellence in Spain, than it had even attained in those regions of poetry and romance from whence they migrated.

Abdarrhannon, whose family continued to reign in Grenada and other parts of Spain, until the period of their expulsion, about the year 1030, by the Emperor of Morocco, founded the city and

university of Cordova, at one time the most illustrious and learned almost in the world, and which, as early as the tenth century, was able to boast of the largest library in the West, containing no fewer than 250,000 volumes, the mere catalogue of which occupied, it is said, forty-four volumes. Such, indeed, was the rapid progress of learning in Spain, (previously sunk in the darkest abyss of ignorance beneath the iron arm of Papal oppression,) under the fostering dominion of the much extolled, but truly enlightened and chivalric, Saracens, that, even in the twelfth century, or within 500 years after the foundation of the Arabian empire in the West, Spain could boast of no less than seventy public libraries, filled with the choicest flowers of literature; academies were established at Seville, at Toledo, and at Murcia; while Cordova could boast the production of no fewer than one hundred and fifty writers of distinction, Murcia of sixty-two, and Almeria of fifty-two. Such was the beautiful and important structure which those Saracens, whom history has so falsely represented, erected in Spain as the noblest trophy of their surprising victories—such the splendid legacy which they bequeathed to a besotted race on their fatal expulsion from the country they had enriched. It was reserved for mischievous Christians, for the infatuated followers of an idolatry worse than Pagan, to pull down the noble fabric which was erected to ennoble humanity, and overturn the only beacon which could light them on their way to truth, to light, and to

happiness. Such was the country, and such were the circumstances, in and under which some of the most eminent of the writers among the Arabians shed the lustre of their learning, and claimed the meed of literary no less than warlike reputation for the successful arms of their countrymen.

The family of Avenzoar was alike ennobled by ancient and splendid descent, and by a long-continued eminence in the ranks of science; both his father and grandfather having been conspicuous for their knowledge and success in the practice of medicine. Neither the date, nor the place of his birth, is known with precision, but it is evident, from his own works, that he must have flourished many years after Avicenna, whom he eulogises in the most extravagant manner, calling him the Admirable, the Treasury of universal knowledge, and supreme in Medicine since the days of Galen. His birth is believed to have taken place towards the close of the eleventh century, in the city of Hispal, or Seville, the capital of Andalusia, and, at that time, the residence of the Caliph: at least, if he was not born there, he appears to have made that city his place of residence for a long period of his life. He commenced practice, according to some, at the early age of twenty, but, according to others, at that of forty years; living to the advanced age of one hundred and thirty-five years, during the whole of which he enjoyed the blessing of robust health. We learn from himself that he was unjustly fined and

thrown into prison by Haly, the Count of the royal stables in that city, notwithstanding his having, either before or after that period, cured the Count's son of a Jaundice. Avenzoar, possessing a handsome hereditary fortune handed down to him by his ancestors, practised gratuitously among the poor and persons of small fortunes, but did not refuse presents from the rich, which, however, he converted to the means of relieving the distressed; for he was, though stigmatized as an infidel by persons calling themselves Christians, as charitable as he was skillful, as liberal as he was enlightened: like the good Samaritan of the parable, he lived but to be the benefactor of his fellow-creatures—and he toiled to do good, and not to accumulate wealth. Although regarded by some as inclined to Empiricism, few of the Arabians merited the imputation less than Avenzoar, who was a decided foe to every kind of quackery, and has given in his works an ample collection of the formulæ employed by himself and others: indeed, in addition to being descended from ancestors who had been eminent for their skill as regular practitioners, he enjoyed himself all the advantages of a regular and scientific education, not confined to the mere practice of medicine, but extended, from his eagerness in the pursuit of knowledge, to every thing relating to Surgery and Pharmacy. He laid it down as an axiom, that "Experience was the best guide and test of Practice; and that every physician conforming to this test would be acquitted

both here and hereafter:" this he explains more fully a little farther on, where, speaking of the unimportance of the kind of oil employed as an application to tumours, he takes occasion to observe, that "it is not by logical distinctions and sophistical refinements the art of healing is to be acquired; but by the union of daily experience with requisite powers of discrimination"; which he illustrates by a satisfactory example. Indeed so little was he inclined to Empiricism, that he held mere formulæ in the most supreme contempt, and ridiculed the faith reposed in old wives' prescriptions, as much as he did the idle pretensions and absurd superstitions of the Astrologers. He wrote a work which he entitled "*Tayasser fi 'lmada wat w' altadbir*", or "the Method of preparing Medicines and diet," containing rules for diet and medicine in almost every complaint, and furnishing a lasting monument of his skill and experience. We learn from this work, to which he afterwards added a supplement under the title of "*Jame*," or "a Collection," that he had the charge of a hospital, and was frequently employed in affairs of importance by command of Miramamolims. Throughout the whole of this work he uniformly espouses the doctrines of the Dogmatic or Rational sect, which was diametrically opposed to that of the Empirics; and so generally, if not universally, does he follow the theories of Galen, that he quotes his very words more frequently than any other Arabian writer. Yet, notwithstanding his treading

so closely in the footsteps of Galen, his works will be found to contain much that will be sought for in vain in the writings of his predecessors; and he details a number of cases, selected from his own practice, which deserve attention. He notices, likewise, some complaints, from which he suffered personally, as Sciatica and Dysentery, which last he cured, as he tells us, by means of an emerald worn over the bowels; and directs it to be taken internally in powder, in similar cases, to the extent of six grains.

Among other complaints, under which he laboured himself, he speaks of an inflammation, terminating in an abscess of the Diaphragm*. When first attacked, which was upon a journey, he was sensible of a slight pain in the part, which was increased on coughing: he had a hard pulse and high fever. On the fourth evening he took away a pound of blood, which produced little alleviation of his symptoms: being obliged to resume his journey on the following day, he went

* From the Greek *δια*, trans, across, and *φραγμα*, or *φραγμα*, septum, a partition, a transverse, circumscissile muscle, of great strength, fleshy towards the borders, and tendinous in the centre, dividing the thoracic and abdominal cavities transversely from each other, and assisting, by its change of form, in the process of respiration. Its centre is convex towards the thorax, and concave towards the abdomen; becoming almost plain, when it presses against the abdominal muscles during inspiration, by which means it enlarges the cavity of the thorax or chest; and returning to its convex form, and thus diminishing the cavity of the chest, when the reaction of the abdominal muscles pushes it back into the thorax, to facilitate the expiration of the air from the lungs.

to sleep, during which, the bandage becoming loose, the blood burst out again, and, awakening, he found his bed soaked through with blood, and his strength much reduced. Expectoration coming on the next day, he took barley water freely; but ascribes his recovery, and with justice, solely to his great loss of blood. Besides Abscess of the Diaphragm, he also notices Abscess of the Pericardium*, a complaint of which we do not find the smallest mention in any other writer, either of the Greeks or the Arabians; although, from the proximity of these organs to the Pleura, and their adhesion to each other, they must be equally subject to inflammation. Salius Diversus, who describes, with considerable judgment and ability, a variety of complaints unnoticed by other writers, devotes an entire chapter to the consideration of this one, of which he says he could find no mention made elsewhere. It is also slightly noticed by Rondeletius, in his book on the mode of distinguishing complaints by their symptoms, where he observes that, in Abscess of the Pericardium, besides being

* The membrane, bag, or capsule, which contains the heart, and regulates its posture. Its size and strength are considerable, and though it appears to surround the heart loosely, when this last is empty and relaxed after death, no doubt embraces it so closely during life as to give it powerful support in its various actions. It is connected with the diaphragm a little to the left of its tendinous centre, adhering so firmly as to be absolutely inseparable. It is also connected with the great vessels of the heart, which it embraces for a considerable way, giving an outward coat to each, and surrounding each with a sort of ring.

attended with less difficulty of breathing than Peripneumony, the patient is less relieved by expectoration.

Besides Abscess, Avenzoar notices some other affections to which the Pericardium is occasionally subject; as the thickening of its coats by the production of what he calls a new substance, resembling cartilage or pellicles, unnoticed, he says, by any former writer. He also speaks of Dropsy of this bag, a complaint which, as he observes, Galen neither saw nor mentioned; it has not, however, escaped the notice of others; for, although, in a healthy state, the aqueous contents of this cavity do not exceed two or three table-spoonfuls, yet, in old persons, and those who have died of this complaint, the Pericardium has been found distended frequently with from half a pound to a pound of water: a case indeed is recorded by Piso, in which the accumulation of water amounted to several pounds; and modern practice abounds in similar examples.

Asses milk, he observes, is strongly recommended by Galen in consumptive cases, but, as the Saracens are prohibited by their religion from using either the milk or flesh of this animal, he was in the habit of substituting goat's milk for it in his prescriptions.

He is the only Arabian writer who speaks of Bronchotomy in dangerous cases of inflammation of the tonsils; he admits that he regarded it as a hazardous operation, which he never witnessed, nor should he wish to attempt it him-

self; but conceived it to be perfectly practicable from the result of some experiments he tried upon a goat. His remarks upon the relaxation or obstruction of the œsophagus, occasioning inability to swallow, are new, and the subject is not to be found in any other Arabian or Greek writer. In cases of this kind he recommends three modes of giving relief; the first by means of a silver or tin tube (first recommended by him for this purpose) passed down into the œsophagus, through which milk or any other liquid nutriment might be introduced into the stomach: the second, immersion in a bath of milk, broth, or other nutritious liquor, in order that the nutritive part may be taken into the system by cutaneous absorption, and so contribute to the sustenance of the patient—a method from which only partial relief could be expected: while the third method which he suggests, is the injection of broths and other nutritive enemata, which, although incapable of being propelled with sufficient force to overcome the resistance arising from the various convolutions of the intestines, and to pass the valve of the colon so as to reach the small intestines, and enter the stomach through the pyloric orifice, must nevertheless contribute much to the sustenance of the body, from the copious absorption of the nutritive matter in solution by the gaping mouths of the absorbents opening into the lower intestines. Yet, although in this respect the plan of enemata has the advantage over that of the bath, it is far inferior to the plan first proposed; for,

as the stomach itself requires distension with food to a certain extent in order to counteract the painful sensation of hunger, and possibly also to dilute or neutralize the corrosive action of the gastric juice upon its coats, it must be manifest that, however injections may answer for a time, for the mere support of the animal system, they must fail in alleviating those pangs which result from the friction of the coats of the stomach against each other, or the action of the gastric juice, in its most concentrated state, upon them, and cannot do more than protract, for a short space, a life of lingering and excruciating torture. Hence it must be manifest, that, although, in all cases in which the first is impracticable, one or other of the remaining methods should be tried in the hope of preserving life, the first is the only one which offers rational hopes of success, or which can materially alleviate the sufferings of the patient. It must, nevertheless, be confessed, that, however inadequate the plan of injection may appear in theory, experience, the only true criterion, has demonstrated its utility in numberless instances, both ancient and modern: as in the case, recorded by Hildanus, of a pregnant woman, who was wholly supported by this means, during a confinement of six weeks in a fever, during the whole of which time not the smallest particle of food, either solid or liquid, entered her stomach through the œsophagus: and yet she was delivered in due time of a fine, plump, and healthy child. Such cases, however, although

they fully demonstrate the feasibility not only of prolonging life, but even maintaining strength, by such means, *in those instances in which the healthy action of the stomach is suspended by general disease*, can hardly be regarded as invalidating the observation which has been already made, and which applies to those instances in which, the general health of the system being unimpaired, and the functions of the stomach maintaining their ordinary action, deglutition is impeded or obstructed by local causes, such as stricture of the œsophagus, &c.

Among other causes of coughs, Avenzoar enumerates, in a chapter expressly devoted to the subject, worms in the intestinal canal, a cause which is not improbably of much more frequent occurrence than is imagined, and may subsist for a long time without being suspected.

But it was not merely in the practice of medicine, or the operations of surgery, that Avenzoar excelled almost all his contemporaries, as well as his predecessors: his skill in pharmacy, to which he appears to have devoted much of his attention, was only inferior to his skill in the higher departments of the profession. His book on pharmaceutical preparations abounds both in simple and compound medicines, as well as valuable observations, not to be met with elsewhere. He is diffuse on the subject of poisonous plants, and their antidotes; and enlarges on the virtues of the oil of eggs, and of a natural balsam, called "*Oil of Alquiscemus*," an admirable lithontriptic, or solvent of the stone,

which his father brought with him from the East. He likewise treats of the properties of the flowers of the Nenuphar* or Nymphæa, which, he says, correct the acrimony of Black Hellebore, nearly, he observes, in the same manner as Mastiche corrects Scammony, and

* *Nuphar lutea*, a plant which should by no means be confounded with the *Nymphæa Lotus* of Linnæus, *Aquæ Agyreæ* of Herodotus, or the celebrated *Lotus* of the Egyptians, which was sacred to Isis: both are aquatic plants, but both the seeds and roots of the latter are sacred, which is not the case with the former. The essential difference between the two genera consists in the insertion of the *sepala*, or calyx leaves, the petals, and the stamens, into the base of the torus, in the Genus *Nuphar*, where, in *Nymphæa*, the *sepala* only are inserted there. The *Nuphar lutea* has large oblong leaves deeply hearted at the base, with the lobes closely approaching, rising to the surface of the water on long, smooth, obscurely triangular footstalks; the flowers yellow, rising on short flower-stems about three inches above the surface; the *sepala*, five, very obtuse, much larger than the petals, which are truncated, and nectariferous on their under surface, the stigma, which is quite entire, is cartilaginous or horny, deeply umbilicated, and furnished with from sixteen to twenty rays. The root is perennial, sending up annual stems which flower in June and July. This is the *Nuphar* of Theophrastus; *Nuphar æon* of *Nuphar* of Dioscorides; *Nymphæa capite luteo*, of Pliney, *Nenuphar mas seu luteum*, of Brunfels; and the *Nuphar lutea* of the last edition of Anton's *Hortus kewensis*. There is indeed another species, the *Nuphar Japonica*, which differs from the *N. lutea* in the form of its leaves, which are oblong sagittate, with the lobes of the base produced into two auricles nearly parallel to the footstalks, forming an acute angle with each other, which might be supposed to be the one spoken of by Avenzoar, but this is improbable, the latter being a plant of Japan and China, countries hardly known in those days; while the *N. lutea* abounds in still waters all over Europe, from the Spanish Peninsula, in which Avenzoar resided, to the banks of the Neva, as well as all over Asia.

Sweet Almonds Coloquintida. He ascribes the discovery of this property to his grandfather.

Avenzoar employed Black Hellebore, (*Helleborus niger*) in the cure of a bony excrescence from the spine, resembling a horn in its form and texture, and yielding to the exhibition of drying and evacuant remedies; being also troubled with a similar excrescence himself, accompanied with severe pain, he succeeded in removing it by the use of solvents and purgatives, without suffering the slightest inconvenience from its remains. He recommends Hellebore, as being the most active, if not the safest purgative. This, as well as the white Hellebore (*Veratrum album*) was in high repute among the ancients for its cathartic properties, which were deemed peculiarly efficacious in carrying off the black Bile, to a redundancy of which in the system they ascribed that particular species of Insanity, which was named, from its supposed cause, *Μελαγχολία* or Melancholy. Hellebore, nevertheless, was regarded by them, and more especially by Avenzoar, as a violent and uncertain remedy; in consequence, no doubt, of the enormous doses which they were in the habit of administering, amounting, as Aretæus informs us, to no less than two drachms; while the uncertainty of its operation arose not improbably from want of attention to the fit season for gathering it. Actuarius is the first who thought Hellebore might be given safely, and without any great disturbance of the system, and extolled it as an admirable

remedy in a multitude of cases: he does not appear, however, to have ventured upon larger doses than a drachm. It is a question, however, which cannot now be very easily determined, whether the celebrated black Hellebore of the ancients was, or was not, the same with the *Helleborus niger* of modern Botanists. Avenzoar farther notices the diuretic and emmenagogic properties of the black Hellebore—properties which it shares in common with the *Helleborus niger* of our own days.

In Icterus, or Jaundice, which he imagined to be the effect of poison, Avenzoar recommends the celebrated Bezoar stone; a remedy which he appears to have been the first to introduce, but which at a later period became a highly popular and favourite remedy. The following account, given by Avenzoar, ought to be sufficient to gratify the curiosity of the most credulous.

“The best [Bezoar] is found in the East, where it is produced from the eyes of the Deer. In those countries the larger kinds of deer eat serpents for the purpose of improving their strength; and, before they have sustained any injury from them, they run down to the rivers, and plunge themselves in water up to the head, a practice taught them by instinct: here they remain immersed, without drinking (which would be instantly fatal) till their eyes begin to water: this humour continues to exude under their eyelids, and coagulate there till it acquires the size

of a chesnut. As soon as the deer find the venom of the serpent exhausted, they quit the water, and return to their usual haunts, when the concretion hardening progressively to the consistence of stone, drops off at length by frequent friction." Such is the wonderful account given by Avenzoar of the miraculous production of this much vaunted remedy, which was valued so extravagantly at one period, that, as we learn from a work ascribed to Serapion upon the authority of Abdalanarakus, a magnificent palace at Cordova was bartered in exchange for one of these stones.

Avenzoar, while a boy, took infinite pains to make himself master of the anatomy of the human body, and to learn the several articulations and positions of the bones of the skeleton; and he not only studied the manner in which the different operations in surgery should be performed, but also performed them with his own hand: thus he became equally expert as an operator and dissector, and treats of luxations, fractures, &c. with the skill of a master: he also details the plan of treatment to be adopted in the cure of Rupture, Fracture of the Os Ischium, Wounds in the arteries and veins, or in the abdomen, through which the fæces pass, &c.; and details, from his own practice, a case in which, after the commencement of gangrene, he gave it as his opinion, in opposition to that of others, that excision of the gangrenous part was the only effectual method of arresting the progress of the mischief and preserving life.

From the apology which Avenzoar has deemed it necessary to introduce into his works, for his exercising in his own person the various branches of Medicine, Surgery, and Pharmacy, contrary to the practice of his father and his grandfather, it is evident, that not only in his time, but for at least two generations before, these three branches of Medicine were practised independently, as three distinct and lucrative professions. He speaks of several eminent schools of Medicine which existed at this period in Spain, and of which that at Toledo enjoyed the highest reputation. He does ample justice to the several professors who taught at these schools, and, upon all occasions, pays the greatest deference to their opinions. But he appears to have had little or no acquaintance with those authors of the Arabians who wrote in Asia, since he neither speaks of them in his works, nor avails himself of their labours. The date of his death is known with as little certainty as that of his birth; but, if the account given of his great age be at all entitled to credit, he must have died about the beginning of the twelfth century *. He left a son, who followed his profession, in which he rose to an eminence little inferior to that of his father, and was in high favour with Almanzor, the Emperor of Morocco.

Besides the works already spoken of as having

* He died, according to the most authentic accounts, at Morocco, about the year 1217, or, according to others, about the year 1225. which last, admitting his age to have been, as is said, 135, gives 1090 for the year of his birth.

been written by Avenzoar, he left another which he entitled "*Fi' tadwiyat wa'laughdyat*," or "A Treatise on Medicine and Diet." He was universally admitted to have been a good and benevolent man.

Averrhoes, who, according to some, was a contemporary of Avenzoar, but, according to other accounts more worthy of credit, was born at Cordova, about the year 1242, though equally distinguished for talent, was, in many respects, a very different character from the latter. He was the son of the High Priest and Chief Judge at Cordova, and was educated at the University of Morocco, where he applied himself, at first, to the study of the Law, which he afterwards abandoned for that of Medicine, Mathematics, and Philosophy. His grandfather appears to have enjoyed considerable distinction among his countrymen, according to the account of Johannes Leo, who has handed down to us many anecdotes respecting him, and, among others, informs us that, upon one occasion, when his countrymen meditated a revolt, he was sent by them to the Emperor of Morocco with an offer of the crown, and was, in consequence, created by the Emperor High Priest and Chief Judge of Cordova—dignities which descended to his posterity.

Averrhoes informs us himself in his works, that he was acquainted with the sons of Avenzoar, but says nothing about his acquaintance with their father, whence we may fairly presume that, as he lived in the same town with Averrhoes, and was too distinguished to be passed without notice, he

must have died either before the birth of Averrhoes or early in his infancy, a circumstance which fixes the birth of the latter at least as late as the year 1217. Having completed his studies, Averrhoes succeeded, on the death of his father, to the posts he had held ; but, notwithstanding the handsome income which he derived from these sources, added to the receipts of his professional practice, his generous and liberal disposition kept him perpetually poor. He was a man of sound judgment and powerful talents, and excelled particularly in the acuteness of his powers of reasoning. He, therefore, soon became a sceptic in the faith to which he had been brought up, and in which he held so sacred an office as that of High Priest, and, being of too candid a disposition not to express his opinions with more sincerity than prudence, was deprived of his employments upon a charge of Heresy, and thrown into prison—from whence, however, he was soon after released, and restored to his hereditary posts, in consequence of the misconduct and extortion of the person who had been appointed to succeed him. Bayley has collected many anecdotes respecting Averrhoes, from a variety of authors, by whom he has been led into a multitude of errors—as for example, when he speaks of his enmity with Avicenna, which he assigns as a reason for his never making mention of him : a statement which only proves that Bayley blindly followed the authority of the writers he consulted, without once taking the trouble to refer to the writings of Averrhoes himself, in which he would have found the inno-

curacy of this statement. Bayley likewise labours with no small assiduity to fix the charge of impiety upon the memory of Averrhoes, whom he represents as denying the immortality of the soul, and the existence of future rewards and punishments; as though it necessarily followed, from his questioning the absurdities of the Mahometan faith, that he denied all the great and fundamental truths of religion: or, as if the fact of his detecting the adulterations produced by the alloy argued his inability to distinguish between them and the precious metal which they debased. Had Bayley sought for a confirmation of this charge also in the works of Averrhoes himself, he would have discovered it to be utterly destitute of foundation, and to have originated solely in the malignancy of his traducers; for Averrhoes has, in one treatise*, expressly maintained the *immateriality*, and, in another†, the *immortality* of the soul: facts which fully disprove this idle and malicious charge.

From his numerous illustrations of the works of Aristotle, who was a favourite writer with him, Averrhoes obtained the name of the Commentator. At the desire of Miramamolius, Emperor of Morocco, he wrote a work on Medicine, which he admits himself to be only a compilation of the observations of others, with some additions of his own. In this work he arranges the whole science of Medicine under seven general divisions. Commencing with the

* *Physic. Disp.* 3.

† *Ib.* 4.

general precepts of the art, he gradually comes to particulars ; so that a thorough acquaintance with Logic and Natural Philosophy becomes necessary to enable the reader to comprehend him. He furnishes nothing new on the subject of Anatomy, contenting himself with simply transcribing from Galen : and the practical part of his work is almost equally deficient in novelty. He appears, however, to have been the first to remark that a person who has once had the Small Pox is not subject to a return of the complaint. That this is an opinion which, however long and widely diffused, requires very considerable qualification, has been already shewn in the first chapter of this work, when speaking of the medical writings and opinions of the Chinese. The object which Averrhöes appears to have had principally in view, in the compilation of his great work on Medicine, was to rectify the conflicting theories of former writers, and to reconcile the conflicting opinions of Aristotle and of Galen, two men whom he held in the highest estimation, to the former of whom he assigned the first, and to the latter the second place, among the writers and philosophers of the age. His work being, however, little, if any thing, more than an echo of the opinions of others, possesses little practical utility. He mentions, among other persons noticed in his writings, Alkindus, an author, one of whose works, on the proportions and doses of Medicines, is yet extant. In this work an absurd attempt is made to explain the powers of Medicines by the laws of Arithmetic

and Music, which Averrhoes justly ridicules, and considers his notion, that "the activity of a medicine always increases in a duplicate ratio when compounded with others," as visionary and unfounded; imagining that he was led into this error from a misconception of what Galen has said upon the same subject. Preind thinks it probable that this Alkindus is the same with the celebrated Peripatetic Philosopher of the same name, who flourished in the time of the Caliph Almamun: but it appears equally probable that he was the same with Alkendi, a philosopher of high reputation at Damascus, about the year 1190, with whom we are told Abdallatif disputed triumphantly in the course of his travels.

Every thing connected with the history of Albucasis, otherwise called Al Zaravius, or Al Zaharavius, is buried in profound obscurity; and doubts were even entertained for a considerable time as to the identity of these two; but the authority of two MSS. preserved in the Bodleian Library seems to establish this identity beyond dispute: more especially one of them, which is entitled "The eleventh part of the book Al Tasrif, by Albucasis Chalaf Ebn Abbas Al Zaharavius," and at the end of which is the following sentence, translated from the Arabic: "Here ends the treatise on Surgery, which is the conclusion of the whole work on the practice of Medicine, written by Albucasis, &c. On the first day of the month Safar, A. H. 807*." In addition to which,

* Corresponding nearly with the year 1429 of the Christian era.

Albucasis himself refers, in works of which he is known indisputably to have been the author, to this work on the practice of Medicine, as one written by himself. Hence there can be no doubt that Albucasis and Alzaravius are really one and the same person. Little is known with certainty respecting either the time and place of his birth, or the place of his education, nor is the slightest notice taken of him in any of the Arabian writers whose works have reached us; a circumstance which militates strongly against the opinion of those who suppose him to have lived as early as the year 1056, in which case we might have expected to find some notice taken of him in the works of Avenzoar or Averrhoes, who wrote so much after that period. Indeed his own works furnish grounds for concluding that he flourished at least a century later, since, in his book on the nature and treatment of wounds, he gives a description of the arrows employed by the Turks, a people who were almost unknown before the middle of the 12th century; while another fact, of which he also makes mention, namely, the low state of surgical knowledge in his own days, brings him down to a much later date; for we know that surgery flourished in the greatest vigour as late even as the days of Avenzoar, who died in the 13th century, and the science could hardly have become almost extinct, as Albucasis informs us it had in his time, in less than a century; so that we cannot err greatly in fixing his date at the end of the 13th, or beginning of the 14th century.

Albucasis appears to have been the first who formed a rational plan of treatment for the Small Pox, and indeed to have pushed the cold regimen in this complaint farther almost than the boldest of our modern practitioners, for, besides carrying venesection to its utmost extent at the commencement, with a view to reduce the inordinate arterial action, he ordered cold water to be taken, largely, internally. Our distinguished and lamented countryman, Dr. Currie, in one instance employed the cold bath in the eruptive fever of Small Pox with the happiest effect, but it was before the appearance of the eruption, and conducted with all that professional care and skill, for which he was so eminent—indeed, managed in strict conformity with the admirable cautions laid down in his valuable work, there can be little doubt that cold affusion might be advantageously employed in this as well as other eruptive complaints.

Albucasis, finding the practice of Surgery reduced to so low an ebb, and engrossed by the most ignorant and impudent pretenders, laboured with success to restore it to its proper station among the branches of useful knowledge, and to rescue it from the state of degradation into which it had unhappily fallen; justly censuring those who attempted its practice without first acquiring an adequate proficiency in the knowledge of Anatomy and the first principles of medicine: he also urgently entreated the several practitioners of his day, never, for the sake of gain, to undertake the care of any case into

all the particulars of which they have not themselves thoroughly inquired. His great work, entitled "*Al Tarif*," or the Art of Healing, occupies thirty-two volumes, and is considered by some to display an intimate acquaintance with the diagnostic art of medicine, or the art of discriminating disorders from each other by their symptoms. This work, as Freind observes, is not destitute of merit, and is judiciously arranged; it contains, however, little that is new or original, being chiefly made up of transcripts from Rhazes and others of his predecessors; yet, although he borrows freely from the Greeks, and especially from *Ætius* and *Paulus*, he notices only *Hippocrates* and *Galen* by name. He is the only writer among the ancients who has left us figures of the various instruments employed in Surgery, in his day, accompanied by a description of the manner in which they were used: these figures may be seen in both the Bodleian MSS. already spoken of, but they may be found more neatly represented in the Latin translation. He also gives every where a clear and distinct explanation of the nature of each operation, and the manner of performing it. He professes to reject every thing that is superfluous in surgery, and to retain only what is essential; declaring that he will give nothing but the results of his own practice, and informing us that he has united the most extensive reading with the greatest length of experience.

His first book is confined to the consideration

of Cauteries, which appear to have been favourite remedies with him: and he enumerates fifty cases in which he experienced their utility. His directions respecting their mode of application, and the cautions which they require, are extremely minute; and he protests against their being employed by any but those who are thoroughly acquainted with anatomy, and fully conversant with the exact position of the several arteries, veins, and tendons; illustrating the importance of this caution by the history of a case of Sciatica, in which the ignorance of the operator proved fatal to the patient, from the application of the Caution to the instep, and the injury of the tendons situated there. Yet, in extreme cases of this complaint, he does not scruple to recommend this remedy, which, however formidable to the eye, is of the utmost efficiency in the application. Caution was a more frequent remedy indeed among the Arabs than among the Greeks, and was effected more commonly by means of caustic potass, or potential caution, than by actual burning. Hence this practice obtained, among the Greeks, the name of *Kaustic Apaptesis*, Arabian Burning; as Dioscorides mentions in his account of Goat's Dung, which was employed by them for this purpose. Prosper Alpinus also acquaints us that *Kaustic*, or burning, was a common remedy in his day*, and one upon which both the Egyptians and the

* In the 16th Century.

Arabs of the desert placed the greatest reliance, in the cure of deep-seated pains and obstinate complaints of long standing.

In his second book he describes ninety-six operations performed with the knife, which he observes to be much more dangerous than the cautery, and to require, in consequence, greater care; a great loss of blood, which he regards as the vital principle, often following the incision.

At the very commencement of this book, he notices the manner of operating in cases of Hydrocephalus, or Dropsy of the Brain; not only when the water is contained between the external covering of the skull, but also where effusion has taken place internally between the Cranium and the Dura Mater. The method of operating he takes chiefly from Paulus; but adds, from his own experience, that is by no means an operation to be recommended, since, with the exception of a solitary case, he never knew it succeed. In the first species of Hydrocephalus, when the tumour is external, whether anterior or posterior, whether contained between the *cutis* and the *cranium*, or between the *bones* and the *pericranium**, although the operation seems to promise little success, instances of its being performed with advantage are not wanting; but there is a third kind of Hydrocephalus, in which the water is effused not only between the *dura* and *pia mater*, but also within the ventricles and substance of the brain, which may be re-

* The membrane immediately enveloping the skull

garded as incurable, and in which no prudent surgeon would attempt an operation.

But, although Albucasis is no great advocate for incision in cases of Hydrocephalus, yet, in other tumours of the head, which are cutaneous merely, and circumscribed, especially when encysted*, he strongly advises it, as being unattended with danger, so long as the nerves and arteries are preserved from injury: and he adds that the danger is still less when the substance of the tumour is compact and solid, since in such cases the chance of hæmorrhage is greatly lessened.

He follows Paulus in his method of treating tumours of the tonsils which run on to suppuration: and explains how the Tonsils themselves, when so enlarged as to impede respiration, should be extirpated: an operation which, however difficult to perform, is perfectly free from danger. Albucasis is nevertheless of opinion that this operation should only be performed when the base of the tumour is small, and the tumour itself of a round form and white colour; for, where the base is large, he apprehends that the hæmorrhage might be excessive, which is often productive of danger and inconvenience. On this latter account, although recommended by high authorities, Fabricius of Aquapendente, who never attempted the severer operations, condemns the operation of extirpation with the knife, while others advise the use of caustic, carefully employed, as safer, and at the same

* Contained in a cyst, or bag.

time more effectual. In the same chapter he treats of other tumours in the cavity of the fauces, which occasionally arise and demand extirpation in the same manner as enlarged tonsils; and gives the history of one, which occurred in the case of a woman, and was of a livid colour, but unattended with pain; it impeded, however, both deglutition and respiration to such a degree as must have proved speedily fatal without surgical aid. It sent two branches into the cavities of the nose; he describes the operation of excision with the greatest minuteness; but finding that, when one tumour was removed by means of the knife, a fresh one grew up in its place, he had recourse to the use of cautery, which he imagined would effectually check its future growth; but, at the same time, candidly admits that he knew not what became of this patient after he discharged her from under his care. He treats likewise, in the very words of Paulus, of the extirpation of the *uvula*, in cases either of suppuration, or of such obstinate relaxation as to refuse to yield to the usual topical applications; he also repeats the caution which Paulus gives, not to remove more than the portion which has been preternaturally enlarged, for fear of injuring the voice. This, however, is an idle caution, founded upon an erroneous opinion of the uses of this organ: as was proved by a case which Fabricius Hildanus has recorded, in which *its total extirpation produced no effect* whatever upon the voice; and indeed Fallopius was of opinion that the loss of the *uvula*, unless

accompanied by that of some portion of the palate, which was by no means a frequent occurrence, could not injure the voice. When the patient objects to extirpation, either by the knife or by the use of the actual cautery, he recommends the application of a liquid caustic prepared with quick-lime, which is to be introduced and confined to the exact part by means of an instrument of a peculiar construction.

On the subject of Bronchocele, or an enlargement of the Thyroid gland, he is infinitely more copious than either Celsus or the Greek writers : making a correct distinction between the complaint, according as it is the result of accident, or of constitutional predisposition ; and remarks that it is more frequent among females than among males. When arising from constitutional predisposition, it should not, he observes, be touched. The accidental complaint he divides into two species, one of which resembles a tumour filled with some thick substance ; while the second resembles an aneurism. It is only in the first of these sorts that he advises the use of the knife, and even then only when the tumour is lax and small, and inclosed in a cyst. In such cases it undoubtedly may be artificially removed without danger. These tumours, however, are occasionally found to contain nothing but air or water, and may be removed either by excision, friction, or compression. They are sometimes fleshy, situated between the *trachea* or windpipe, and the skin, hanging down like a dewlap, or the wattles of a Turkey Cock when he is angry.

This complaint is most frequent in Alpine districts, in which the inhabitants drink much cold water, especially where they employ ice in place of snow to cool it, as is common among the inhabitants of Piedmont, and in the mountainous districts of Genoa.

Albucasis likewise speaks of two tumours resembling fungi, which grew upon the belly, and which he removed with the knife; they contained, one of them six, the other eighteen ounces of water, and were of a white colour, attached to the abdomen by slender roots, had their margins turned inwards, and had a perpetual moisture exuding from them. In similar cases, however, he cautions the operator to ascertain well beforehand whether the tumours proceed from aneurism or not, and where he has the slightest suspicion of their being the result of aneurism, he should have the cautery at hand. When the patient objects to the removal of the tumour by a direct operation, he recommends passing a leaden ligature* round its base, and gradually tightening till the excrescence drops off. But, when the base of the tumour is large and thick, and its colour bad, he cautions the operator against interfering with it, from an apprehension of its being of a strumous or cancerous nature. His fifty-seventh chapter is occupied with the subject of circumcision, the merit of introducing which into practice he claims wholly for himself, saying, that it had not been recommended by any

* A ligature made with leaden wire.

of the ancients ; forgetting how fully both Paulus and Celsus had written upon the subject before him, and, that Celsus had described nearly the same operation in cases of Phimosia. He has written much, and ably, on the delivery of women; and details a singular case which fell under his own observation, in which the *foetus* dying without delivery, and the mother becoming pregnant a second time, the second *foetus* also died and remained in the uterus. Soon after, an abscess forming at the navel, and coming to maturity, discharged, to his great surprise, not only pus, but bones, which he found, upon recollection, must have proceeded from the *foetus*. The mother lived many years after this event, but continued for the rest of her days to have an open ulcer at that place, from which there was a continual discharge.

He transcribes what Paulus has said on the subject of Bronchotomy, but without acknowledging his authority : he admits never having seen the operation performed, but did not imagine it was attended with any danger. He was led to form this opinion from the speedy recovery of a woman who had cut her throat without wounding the Jugular veins, or Carotid arteries, and sustained no inconvenience from the attempt beyond a degree of hoarseness, although, at the time, the air rushed violently through the aperture made in the trachea.

Speaking of femoral abscess, he relates a case in which the bone became carious for the length of a palm, which occasioned its total destruction ;

in its place, however, a *callus* succeeded, which became so firm, as to enable the patient to walk without inconvenience. He describes the operation of Paracentesis, or evacuating the fluid in dropsical cases by tapping, much more fully than either Celsus or Paulus; and adds, that Ascites is the only kind of Dropsy in which it is admissible. He explains the method of performing this operation, which is among the most ancient in Surgery, and is repeatedly noticed by Hippocrates, so minutely and so correctly as to be unrivalled by the moderns. He gives a representation of the instrument employed in the operation, which is a Spathomele, sharp on both sides; this is to be withdrawn immediately after making the incision, and a canula, armed with its ring to prevent it from penetrating too deeply, introduced into the orifice, and detained there, by means which he describes minutely, so as to draw off the water more effectually; he advises only one half to be taken at first, and the remainder gradually.

He describes a singular affection, which fell under his own immediate observation, in his ninety-third chapter; it was the case of a woman of a spare habit, with very prominent veins. On examining her hand, he found a tumour in one of the veins, accompanied with inflammation; this, after the lapse of an hour, mounted with a kind of vermicular motion, but quicker than thought, to the arm, oscillating hither and thither, the pain shifting its seat along with the tumour.

Having, in the space of another hour, traversed the body, it reached the other hand, where it exhibited the same appearances as at first. What surprised him most was the rapidity of its passage from one limb to the other. He, unfortunately, omits to mention the plan of treatment he pursued, or its result, in this singular affection; but, in similar cases, where the tumour is very prominent, and the pain excessive, he recommends cutting it out and immediately cauterizing the part.

He gives, from his own practice, many accurate descriptions of wounds from arrows, together with his plan of cure, and an account of his surprising success in several cases. Among others, he mentions having extracted the head of an arrow from the nose, in which it had been lodged for a considerable time; and yet the patient was well at the end of the fourth week. From his experience in this case, he contends that it is an error to suppose that the cartilage of the nose cannot be made to reunite after it has been divided.

At the close of his second book, he treats of the various methods of bleeding; and, when speaking of the veins of the arms, describes two modes of making the incision: the first with an instrument shaped like an Olive or Myrtle leaf; of which that resembling an Olive leaf should have a narrower and sharper point: the other method is with a knife which he calls *Alucassir*, and the small bleeding knife, which, Guido de Cauliaco says, was the same with the lancet of the moderns;

but the form, as described by Albucasis, was wholly different. For opening the frontal veins, he recommends an instrument somewhat like that used by veterinary surgeons; this, which he terms "Fossorium," is altogether different from any instrument employed in modern practice.

In his account of the operation for extracting the stone from the bladder, he is much more accurate and copious than either Celsus or Paulus; and he particularly describes the mode of extraction by incision in female cases. On the plan of treatment in such cases, the Greek writers are altogether silent: and, indeed, with the exception of Albucasis, Celsus, who touches very slightly upon the subject, is the only writer among the ancients who notices the distinction. Indeed, from the accounts we have of the state of medical practice formerly, it would appear that, where such complaints occurred in female subjects, surgeons had few opportunities of operating; being prevented from interfering where the patients were either unmarried girls, or married women with any pretensions to modesty. In such cases, female operators, distinguished among the Greeks by the names of *Iatpistrai* and *Maïai*, were employed to act under the direction of the surgeon, who was not himself permitted to be present, and, being solely guided in his judgment by the report of these women, had no opportunity of judging for himself. Hence, we can be at no loss to account for the silence of the ancients on such matters; and we may easily conclude, that what Albucasis

gives on the subject is the result of description, rather than observation.

Such was the general progress of medical knowledge among the Arabians or Saracens, during that dark and stormy period of European History, in which the oppression of papal tyranny and superstition weighed down, like a mental incubus, the energies and faculties of man, and rendered all merit, which did not tend to advance the power of an intolerant and licentious Heresy, dangerous to its possessor. Yet, notwithstanding the great advantages which the Arabians derived from their proximity to Alexandria, so long the seat of learning; notwithstanding the dispersion of the best writings of the Greeks among them, after the capture of Alexandria; notwithstanding the multitudes whom the unwise persecution of the Emperor Justinian, first, and the unchristian tyranny of the Pontiffs afterwards, drove for refuge among them; notwithstanding the munificence of their earlier Caliphs, and the singular encouragement held out by them to literary exertion; the progress they made bears no proportion to the opportunities they enjoyed. We have seen the stimulus given to learning by the princely Almanzor—we have seen his successor, Haroun Al Raschid, nobly treading in his steps; and both outdone by the splendid exertions of Mnamon—we have seen the city of Bagdad inundated with men of learning, chiefly Christians, banished on account of their religion, and amounting, at one period of Almanzor's reign, as Leo Africanus informs us,

to no less than six thousand; and the medical school at Jondisabur, the professors of which were chiefly Christians, of the Nestorian sect, flourishing in an almost equal degree under the Caliph Al Raschid, and his son Almanon. Yet the stimulus, thus powerfully applied, appears to have been ephemeral in its duration, and transitory in its effects, hardly surviving those princes whose liberality and example called it into being; and to have been completely exhausted in a few fleeting centuries. Thus we find, in the time of Albucasis, the date of which, though difficult to fix with precision, cannot be much later than the thirteenth century, or little more than 600 years after the reign of Almanon, medical knowledge, (which may be regarded as a kind of thermometric gage of the literary temperature,) had sunk far below Zero, and called for those keen, but necessary censures, which we meet with in the works of that celebrated writer. It is true, indeed, that, during a portion of this period, the torch of learning burned with a brighter flame in the fertile plains of Spain, under the auspices of the exiled house of Omnia, and during the chivalric reign of the Saracens, than even in the spicy vales of Arabia, that country of romance, and under the dominion of her most enlightened Caliphs. Yet, even in the West, with all the superiority of advantages which they possessed over their brethren in the East, neither Avenzoar of Seville, nor Averrhoes of Cordova, the two most distinguished of their medical writers, exhibit much

originality of conception or novelty of practice. Their works are little more than transcripts from the Greek: and almost every observation of importance which they contain is to be met with in the writings of Hippocrates, Celsus, or Galen. Chemistry and Pharmacy were the branches to which they most sedulously applied, and in which they introduced the greatest improvements. To them we are indebted for some of the most useful purgatives contained in our *Materia Medica*; and from them we have borrowed the example of publishing *Pharmacopœias*.

There are other Arabian writers whose works are extant, of whom it might have been expected notice would be taken—but when it is considered that condensation is the leading object of the present publication, and that the works in question have little of originality to boast, and almost less of merit to recommend them—the omission of a dry catalogue of barbarous or unprofitable names, such as *Abenguenfit*, *Jesu Haly*, and *Camanesali*, will doubtless be deemed venial.

CHAPTER V.

Account of the minor Medical Writers of the Greeks from about the Tenth to the Fourteenth Century—Actuarius or Zacharias, delicacy of fixing the era in which he flourished, his *Compendium of Medicine*—*Hydrophobia*, *Parasitism*, his objection of the milder Purgatives—*Books on the Pulse and Urine*—*Norus*—*Pselius*—*Simeon of Antioch*—*Demetrius Pepagomenus*.

We must now retrace our steps for a short space of time, in order to notice the works of three of the later writers of the Greek School, whose precise age it is difficult to determine in any thing like a satisfactory manner, and whose works exhibit a style grossly degenerated from the purity of the classical ages, and disfigured by innumerable barbarisms.

The first of these whom we shall notice is Actuarius, the son of Zachary, whose real name was Zacharias, but who appears to have obtained the former name from the circumstance of being the chief medical attendant upon the imperial court. Authors are greatly at variance with respect to the age in which he flourished—some placing him in the eleventh, some in the thirteenth, and Lambecius in the fourteenth century. The ground assigned by Lambecius for this latter opinion is the circumstance of one of his works, on the Art of Healing, preserved among the MSS. of the Imperial Library at Vienna, being dedicated to Apocauchus, the same, according to Lambecius, who was so conspicuous under the

Emperors Andronicus * the second, and Andronicus the younger, and the Usurper John Cantacuzenus, about the year 1330, or 1340, and who, Actuarius says (but without naming him) was sent on a diplomatic mission to the North. This Apocauchus was a fellow pupil of Actuarius, under Joseph Rachendyta, to whom the Books "De Spiritibus" are inscribed†. Apocauchus was likewise a proficient in Philosophy and Medicine, if we believe Lambecius, who brings forward, in support of his opinion, evidence from the history of Cantacuzenus, in which Apocauchus is spoken of somewhat ironically. But, not to waste more time upon this idle controversy, which may be seen at considerable length in Freind's History ‡, however the description given by Lambecius may agree in many points with the Apocauchus of whom Actuarius speaks, it cannot be the same individual: for it can be proved, not only that Actuarius, but also Nicholas Myrepsus, another Greek writer, who frequently speaks of and quotes him, lived long before the date assigned by Lambecius. Myrepsus was author of a work named "Antidotarium," being a collection of all the various compound medicines, which are scattered throughout the works of the Greek and Arabian writers: now this work was written

* Andronicus II, succeeded the Emperor Alexius Ducas, who was surnamed Murzuphle, in the year 1204, and died in 1332, when he was succeeded by Andronicus the younger, upon whose death, in 1341, Cantacuzenus usurped the government under John Paleologus, and retained it till the year 1355.

† Prefat. in 2, et. 2. Meth. Med.

‡ Freind. Hist. Med. p. 315.

earlier than the year 1300; for not only Peter de Abano, the celebrated Counsellor, who died in 1316, but also Matthew Sylvaticus, and Francis of Piedmont, both physicians to Robert, king of Sicily, who began to reign in 1310, quote from it by name in works written at the commencement of Robert's reign. Hence it is clear that Myrep-sus must have lived previously to the year 1300; and evidence might be adduced to prove that he was contemporary with Pope Nicholas the Third, who died in 1280, and was a great patron of learning. Actuarius, therefore, must have been a much older writer than Lambecius supposes; and if we may be allowed to form any judgment from the superior purity of his style, he is older even than either Nonus or Psellus. With respect to the difficulty arising from the dedication of the MS. in the Vienna Library, it can only be removed by supposing either that there were two individuals of the name of Apocanchus, living at a remote interval from each other, or that the title of the MS. is a modern forgery—an occurrence far from uncommon in the earlier and middle ages.

But whatever may have been the age in which Actuarius wrote; whether he preceded or followed Nonus and Psellus in point of time or not, it is certain that he far surpassed them in the classical purity of his works, and the value of his observations. He has left a number of tracts filled with useful remarks. He practised physic at Constantinople with much success, and it would also appear with considerable celebrity; at least, if, as has been said, his six books "De

Methodo Medendi" were really written for one of the chief officers * of the court, when about to set out on an embassy to some of the Northern nations. In this work, he takes Galen chiefly for his guide, along with *Ætius* and *Paulus*, although without naming either of them; he does not, however, confine himself to these sources of information, but collects and concentrates every thing to be gleaned from other authors, whether Greek or Barbarian, which could throw light upon his subject; and deserves credit also for introducing a multitude of original observations, and noticing many things not to be found elsewhere. He himself terms this work "*Libellus*," a little Book, or Compendium, hastily drawn up for the private and exclusive use of the Ambassador, who, possessing himself some knowledge of medicine, might employ it as a volume of reference. Being written for this particular purpose, and not as a book of general practice, it neither treats of Surgery, nor of the complaints incident to females. *Actuarius*, however, forgetting the exact object for which he was writing, introduces the complaints of childhood, although it is not to be supposed that children formed any part of the diplomatic train. Among other subjects he treats particularly of *Aphthæ*, or the Thrush, a complaint unknown except in infancy or age. In the first two books of this work he treats of the causes and symptoms of diseases, and in the two which follow, of their cure, both generally and particularly; while the two last

* *Fabricius* is guilty of an error in representing *Actuarius* himself as the Ambassador

contain a description of all the different remedies which he could collect from the writings of the Greeks, from his own experience, and from other sources; rarely, however, with the mention of his authority. In the third and fourth books of this compendium, as well as in other parts of his works, he gives the result of his own practice at considerable length. Under the head of Hydrophobia he mentions instances which occurred within his own knowledge, of intervals of six and twelve months * intervening between the receipt of the injury and the first appearance of the symptoms; an observation confirmed by numberless cases in modern practice: others, he says, alluding to Paulus, whom he quotes without naming, speak of the virus remaining dormant for a space of seven years: but, in such cases, we may be reasonably permitted to doubt how far the complaint is correctly referred to the cause, and whether it has not really originated from some more recent injury which has been overlooked or forgotten by the patient. Morgagni † even speaks of an interval of forty years; but in this there evidently must be a fallacy. Galen ‡ mentions a case in which, to his own knowledge, an interval of a year elapsed from the commu-

* Attamen post sex menses, et anno elapso, invadere contigit, ut nos ex experientia competimus.

Act. Meth. Med. lib. viii.

† De Caus. et Sed. morbor. Epist. viii. Art. 21.

‡ Novissimus et quendam, qui, exacto anno, in eum incursum affectum, quem Hydrophobiam vocant.

Gal. Lib. Procrhet. sect. ii. comm. 17.

nication of the poison : and Dioscorides remarks, that although it usually exhibits itself before the fortieth day, it sometimes lies dormant for six or twelve months *. Dioscorides, indeed, observes, that *report* spoke of cases in which an interval of seven years occurred ; but he gives this simply as an instance which was not confirmed by any observation of his own† ; yet Salus has endeavoured to convert this guarded statement into a positive assertion of the fact from his own experience. Upon the whole, however justly we may be inclined to question the perfect fidelity of those accounts which speak of the Hydrophobic virus lying dormant for periods much exceeding twelve months, we must, from incontestable evidence, ancient as well as modern, admit the perfect accuracy of what Actuarius gives as the result of his own *personal knowledge*.

Actuarius makes some new and valuable remarks upon Colic and Hepatitis. The distinction he makes between the several causes of Palpitation has every appearance of originality : while the whole of what Aëtius and Orabasius have said upon the same subject is borrowed from Galen. Palpitation most frequently arises, according to Actuarius, from too great heat or redundancy of the blood ; sometimes, however, it proceeds from vapours. The state of the pulse indicates which of

* Cum enim ut plurimum ad quadragesimum usque diem differri consueverit ; neglectis tamen quibusdam. post semestrem, imo etiam post annum, supervenisse observabimus.
Dose Lib. vi Cap. 3.

† Sunt qui narrant nonnullos post septennium eo affectu correptos fuisse. l. c. Cap. 8.

these is the cause : being irregular in the former, but regular in the latter case. None of the more modern of the ancient writers, or those of the middle ages, have accounted in a more satisfactory manner for this complaint. The Arabian writers who either preceded, or were contemporaneous with him, ascribe palpitation in general to cold; Paracelsus, to the solution of the tartar of the heart; Van Helmont, to the acidity of the native gas; and Sylvius de la Boe imputes it chiefly to corrosive vapours arising from the Pancreas. But, omitting the further puerilities of writers, let us return to Actuarius.

The inequality of the pulse, he says, indicates some obstruction in the heart; and hence not only forebodes palpitation, but also syncope, or even sudden death; in the same manner as Galen predicted the death of Antipatrus the physician, who soon after expired, from this cause. In these violent cases, indeed, the pulse is not only very unequal at intervals in the force of its strokes, but even intermits at times; for indeed there is resistance from the blood either in the Aorta, or in the Pulmonary artery; to overcome which the heart suspends, as it were, its Systole or Contraction, until it has received a sufficient supply of spirits to propel the blood in the usual manner. Hence it may be remarked, that the intervals between the pulsations vary with the violence of the paroxysms, being longer or shorter in proportion to their severity. Such is the case when the complaint arises from plethora; and it is on this account that those who labour under a sup-

pression of hæmorrhoidal, menstrual, or any other habitual discharge, are, as Galen justly observes, more subject than others to palpitation. Palpitation may not only result from too great a fulness of the vascular system, but likewise from either excessive rarefaction, or preternatural cohesion in the particles of the blood: or from *flatus* pressing or distending either the thorax or the abdomen. It is from one or other of these causes that hypochondriac men, and hysteric women, so frequently suffer from palpitation, as Actuarius has remarked. In the cure of this complaint, besides those remedies which are adapted to the nature of the case, and the constitution of the patient, Actuarius places his chief dependence upon bleeding and purging; which last remedy he is the first to recommend in this complaint.

It is singular that we find no notice whatever taken of the small pox in any of the works which have reached us under the name of Actuarius; although, had he lived as late as the period assigned to him by Lambecius, he must have been practically acquainted with this complaint, which had been, long before the fourteenth century, introduced into Europe by the Saracens, and had spread its devastations with the most alarming rapidity. From his silence on this subject we must either conclude that he lived earlier than the time of Rhazes and the other Arabian writers who have noticed it, or that he was unacquainted with the works of these authors. Indeed we meet with no com-

plaints in his works except those which had been already spoken of by the other Greek writers. It is possible, but only barely possible, that Constantinople, and the other parts of the Greek Empire in which Actuarius resided, may have been exempted from this dreadful visitation, which spread rapidly, after its first introduction, over Europe, Africa, and the greatest part of the oriental districts of Asia; but, though the complaint may thus have evaded his actual observation, it is hardly possible to believe that some report of its progress and manner of attack could fail to have reached him, or that he would have hesitated on such a report to take some notice of so novel and formidable a malady.

Actuarius is the first Greek writer who has noticed the milder purgatives, as Cassia*, Manna, Myrobalans, and Senna: of these, the two last he says were imported from Syria and Egypt. He describes Senna as a fruit, without taking the least notice of the leaves, which are the only part employed in modern practice. What

* The pulp of the fruit of the *Cathartocarpus Fistula*, a tree originally introduced into the West, from the East Indies, and now frequently to be met with in the Caribbean islands, especially in Dominica, where it makes a most splendid appearance when in flower in the months of May, June, and July, rivaling the *Laternum* of Europe in the elegance of its pendulous racemes of golden flowers. Such is the estimation in which this tree is held by the French, that, during their temporary occupation of Dominica, in the war of the American Revolution, every planter was required, by a royal Ordinance, to make a return to the Governor of every Cassia Fistula tree upon his estate.

he borrows on the subject of these purgatives from the Arabian writers, he freely acknowledges; and, like them, describes three kinds of Myrobalans, two of which he calls by the Arabian names of Bellerici, and Emblici: and which, although closely resembling the true Myrobalans (*Zizyphus Jujuba*), he distinguishes from them in the same manner as the Arabian writers do. He devotes an entire chapter to Syrups and Juleps, preparations which he borrowed no doubt from the Arabians.

He also speaks of distilled waters, (a subject unnoticed by any of the Greek writers who preceded him,) such as *Rhodostagma*, which appears to have been the same with our Rose-water, and *Intyhostagma*, or Succory water, which he employed in the composition of his Juleps.

Actuarius wrote two books on the animal spirits, in which the whole of his physiological reasoning rests upon principles taken from Aristotle, Galen, and others who have discussed the same subject. He has also left seven books on the Urine, in which he has treated the matter copiously and distinctly, and has added so much of his own as hardly to leave anything new for later writers; many of whom have transcribed his commentary almost word for word without acknowledgment. A chapter at the end of one of these books particularly merits attention, on account of the valuable observation which it contains, that nothing conduces more to the accuracy of

prognosis in disease than the joint consideration of the Pulse and Urine: on which account he has very judiciously united their consideration in the same chapter.

If Lambecius has erred in assigning to Actuarius a later date than that to which he is justly entitled, he appears to have fallen into an opposite error with respect to Nonus, whom he has placed in the reign of Constantine the seventh, who was surnamed Porphyrogenitus, and died, according to Lambecius, in the year 900, but, according to the Chronological tables subjoined by Maclaine to his translation of Mosheim's Ecclesiastical History, in the year 959. This opinion he rests upon the fact of Nonus' having inscribed his *Enchiridion Medicum*, or Medical Manual, to a Constantine Porphyrogenitus, whom Jeremias Martius, who edited this work in Greek and Latin, thinks, with much greater probability, to have been the son of Constantine Ducas, or Constantine the tenth, who died in 1067, and was so great an admirer of learning as to have declared that he would rather owe his nobility to Literature than to Sovereignty. As far as respects the value of his work, it is immaterial to which of these Constantines Nonus inscribed it; but it may not be amiss to observe that, according to the History left us by Anna Comnena, literature was either wholly extinct, or in a very languishing condition, during the time which intervened between these two Emperors. The Epitome of Nonus is a mere compilation. For instance, the whole of what he says, in his

chapter on Carus, about the anterior part of the Brain, is borrowed from Alexander and Paulus: his directions respecting bleeding in the Paroxysm of Calculus, from Paulus; and the remark and distinction made between the effects of bleeding and purging in Pleurisy, from Alexander. Even his remedies are copied without alteration from Aëtius: yet, he never once had the candour to acknowledge his authorities; and even has the assurance to claim their experience as his own: for, in his description of Melancholy, he speaks largely of the beneficial results he has witnessed from the use of the Lapis Armeniacus*, preferring it to the Veratrum album, or White Hellebore.

He makes some judicious remarks upon Hydrophobia, especially where he observes that, when the result of a wound, he never knew an instance of benefit from art: a confession which accords with the experience of the majority of the ablest practitioners of our own day: although, from some recent experiments with the expressed juice of that valuable plant, the Guaco†, from South America,

* An ore of copper which was violently emetic, similar perhaps in its operation to the Sulphate of Copper or blue Vitriol.

† Mikania Guaco. This plant, which was first pointed out to the notice of Botanists by the distinguished Mutis, is one of the most certain remedies known for the bite of venomous serpents, a property which was accidentally discovered by observing that a bird called the Guaco, which had been bitten in an engagement with a serpent, flew to this plant, and, rubbing itself against it, returned unimpaired to renew the attack. Its expressed juice appears to be a powerful sedative and antispasmodic; and it has been found useful in Gout,

hopes may be entertained that even this fearful malady will yet be brought within the controul of art. In his remarks, however, on the Armenian stone, and his account of Hydrophobia, Nonus has nothing of originality to boast, the one being a verbatim transcript from the works of Alexander, and the other from those of Paulus.

This work is divided, in some MS. copies, into Chapters, and, in others, into Books, and is ascribed to Theophanes without the slightest mention of Nonus; and it is said in the title to have been compiled chiefly from Oribasius: although it is evident, from what has been just said, that the compiler, whoever he was, whether Nonus or Theophanes, borrowed much more largely from other sources, and hardly anything from Oribasius.

Nearly contemporary with Nonus lived Michael Psellus, the author, or, more correctly speaking, compiler, of a work on the nature and properties of aliments, dedicated to the Emperor Constantine, the same, as Lambecius conjectures, who was surnamed Monomachus, and reigned from 1043 to 1055: although if, as Lambecius himself admits, Psellus died in 1078, it is more probable it was Constantine Ducas; especially since it appears, from the testimony of Zonara, that

rheumatism, Toothache, Typhus, Diarrhoea, &c. and, by taking the decoction of the leaves internally, and using it at the same time externally as a bath, the use of the limbs has been restored.—See Lord Stanhope's Address to the Medico-Bot. Soc. 1830. p. 11.

Psellus was private tutor to Michael Ducas, that Emperor's son. We learn also from the same authority that he was perfectly illiterate and utterly unfit for such a trust; while, on the contrary, Anna Comnena, who lived but a few years later, speaks of him as a man of vast genius and profound erudition; and Leo Allatius praises him equally, and, in his dissertation on the Pselli, not only calls him πολυγραφώτατον, or a most copious writer, but also ranks him among the first of the age. Hence, it is possible there may have been two of the same name, contemporary, or nearly so—to each of whom these contradictory characters applied; and it is probable also, from an examination of the work itself, which is a mere compilation from the older Greek writers, that it was the production of the Psellus spoken of by Zonara. The Psellus, eulogized by Allatius, wrote many works, highly spoken of by his eulogist, but was at length so harrassed and plundered by Nicephoras Botonias, that he retired into a Monastery, where he died at an advanced age.

Although in itself but a compilation, the work of Psellus furnished not only a subject but the best part of the materials also for a production, or rather a plagiarism, by Simeon of Antioch, who wrote in a most barbarous and corrupt style. As Psellus' book was so very recent and so well known, it is surprising Simeon could have had the assurance to pilfer so freely from its contents, or at least that he should have been suffered to do so without reprehension. Although junior to

Psellus, Simeon must have been nearly his contemporary, having dedicated his work to Michael Ducas, surnamed Parapinaceus, who abdicated the Empire in 1078, the same year in which, according to Lambecius, Psellus died. Several other works of Simeon's are extant, and among the rest a translation into Greek from the Arabic, of a silly work on the Wisdom of the Indians, composed, at the request of Chosroes king of Persia, by a physician of the name of Perzæ.

Our only guide to the age of Demetrius Pepagomenus, the last of these semi-barbarous writers who merits notice, is the dedication of his treatise on Gout to Michael Palæologus, but without any year subjoined; whence it becomes a matter of doubt to which of the two Emperors of that name the dedication belongs, the first having succeeded to the throne in 1260, and the other about 1355*.

Demetrius' treatise on Gout, although chiefly a compilation from Alexander and others, is still above mediocrity, notwithstanding the sarcasms of his translator, M. Musurus. Fabricius seems of opinion that the treatise on the cure of Calculus, erroneously ascribed to Galen, was

* Friend says, 1310 (*Hist. Med.* p. 208) but I have preferred Marinus's tables, in which Andronicus II. is said to have succeeded Michael Palæologus in 1283 and continued to reign till 1332, when he was succeeded by Andronicus the younger, on whose death John Cantacuzenus usurped the government till 1355, when John Palæologus recovered the throne, and reigned under the title of John VI. till 1390.

really the production of Demetrius; but gives no reason for this opinion.

With these writers, who can by no means be classed among the better authors of the Greeks, and whose harsh style and innumerable barbarisms strikingly mark the decline of the Empire, we may close the present chapter, and reserve for the next some account of the School of Salernum; which, deriving an almost imperceptible origin amidst the thickest gloom of the darker ages, attained a celebrity hardly exceeded in our own days.

CHAPTER VI

Abuse and Corruption of Medical Practice by the Monks and Priests—Necessity for the interposing influence of authority—Decrees of Council disregarded except in Britain—Superior Learning of the British Clergy—Alcuin, sent as Ambassador to Charlemagne, procures the Foundation of the University of Paris, his high Reputation and Death—Bill authorizing physicians to marry, its effects—School of Salerno—Constantine the African, his travels in the East; Settlement at Salerno; Writings—Robert, Duke of Normandy, Death of his Wife Sybilla, and her heroic attachment to him; John of Meun, Writes the *Regimen Sanitatis*—Aegolius—Roger, first King of both Sicilies, favours Salerno—Benjamin of Tudela—High Reputation of the Jewish Physicians—Privileges granted by the Emperor Frederick II., and their effects—Statutes of Salerno.

It has been already remarked in the fourth chapter, that the Arabians, influenced by a blind submission to the authority of the ancient fathers of Grecian Literature and Philosophy, and taking the works of Hippocrates, of Aristotle, and of Galen, for their almost exclusive guides, did not suffer their own judgment sufficiently to controul their labours, or their natural acuteness to detect the fallacies, and rectify the mistakes, of their models. Thus they were far from profiting to the full extent by the advantages which they enjoyed from the liberality of their princes, and the learned men who sought an asylum from persecution among them; still it must be admitted, that literature in general, and medical science in particular, owes far greater obligations

to the infidel horsemen of the desert during that dark and stormy period which followed the overthrow and dismemberment of the mighty empire of the Cæsars, than to those pseudo-saintly men, who, in the earlier ages, corrupted the beautiful simplicity of the Christian faith, by adulteration with pagan polytheism, and too successfully bound Science for a time in the slavish fetters of the grossest superstition. While the followers of Mahomet, if not actively employed in refining the precious metal, at least preserved the ore from alloy, the mischievous perverters of the doctrines of Christianity were assiduous in their endeavours to debase learning to the same adulterated standard, to which they had brought the religion of the altar. Actuated by the same mercenary motives that influenced, as we have already seen, the pagan priests previously to the reformation effected by Hippocrates, we find the earlier clergy of the Christians pouncing upon the little learning which remained within their grasp, that of medicine more especially, claiming it as their exclusive privilege, and disgracing it by a system of charlatantry and imposture, which would have called a blush into the cheek of even an Aesclepiades or a Themison.

With an effrontery worse even than that of Thessalus, and a boldness, exceeded only by the measure of their ignorance, the monks and priests of those benighted ages rushed into the practice of medicine without the slightest preliminary education, or the most distant pretension to an acquaintance with the first rudiments of

the art; indifferent as to the success of their practice, so long as they pocketed its emoluments, and careless of the health of their patients, so long as they possessed the means of satisfying their own rapacity. The practice of medicine had peculiar charms in the eyes of the monks, to whom it gave a double power of filling their coffers at the expense of the laity, by enabling them to superadd the terrors of the church to the authority of the physician, and giving them access to their victims, at times, when the agonies of disease had impaired the powers of the understanding, and rendered them the unresisting dupes of imposture.

When the violence of the complaint transcended the narrow limits of their skill, or the novelty of its symptoms baffled their powers of discrimination, the deficiency of their knowledge was disguised beneath the veil of mystery, and the power of faith called in to supply the inefficiency of prescription. Where medicine failed, charms supplied its place; the tooth of some reprobate, dignified as the relic of a saint, became, in the hands of superstition and in the imagination of the credulous, a more powerful engine for subduing disease, than the celebrated Antimony of Basilus Valentinus, the Quicksilver of Paracelsus, or the Gas of Van Helmont. This had attained to such a height as, even before the middle of the twelfth century, to call for the interposition of authority, and compel the more enlightened members of a corrupt communion to interfere at length for the protection of the laity

from the ignorance of the priests, and the rapacity of the monks.

Accordingly, the interference of the regular clergy in the department of medicine, and their attendance at the bed-side of the sick, otherwise than as ministers of the consolations of religion, were peremptorily forbidden by the first Lateran Council, held in 1123, during the Pontificate of Calistus the second. This prohibition being found inadequate to check the growing evil, a second, somewhat varied in its terms, was promulgated by the Council of Rheims, in 1131, during the Pontificate of Innocent the second; and a third, conceived in terms still stronger than either of those which preceded it, was passed, after another octennial interval, by the second Lateran Council, in 1139, and threatened, with the severest penalties, those monks and canons who applied to the practice of Medicine*, "neglecting the sacred objects of their own profession, and holding out the delusive hope of health in exchange for ungodly lucre." It ordained that all Bishops, Abbots, and Priors, who connived at such proceedings of the clergy within their respective jurisdictions, should be suspended from their ecclesiastical functions. Such, however, was the disregard in which the Decrees of Councils, and the Anathemas of the Church, were held by the clergy of those pious days, that, in open defiance of every prohibition,

* "*Ordinis sui propositum nullatenus attendentes, pro detestanda pecunia sanitatem pollicentes.*"

and in daring violation of every command, the clergy continued to set an example of rebellion to that authority which they had sworn to obey; and, by practically inculcating the doctrine of resistance on the minds of the laity, prepared them for the more ready reception of the doctrines of the reformation. It was in France, however, that the contumacy of the clergy rose to the highest pitch, and their obstinacy made the longest stand. In Britain, on the contrary, these abuses appear to have been confined within straighter limits, and the character of the clergy to have assumed a higher tone. As early even as the seventh and eighth centuries, they could boast among their number men of the highest literary attainments, and the most ardent christian piety: men as distinguished for their enlarged and comprehensive views, as for their general philanthropy. Such, indeed, was the reputation which the British clergy of these dark and dismal periods enjoyed, both for the superiority of their literary and scientific attainments, and the comparative purity of their morals, that they were in the highest request among the princes of other countries, and were eagerly sought to fill literary situations of the first importance. Among the learned men who adorned the Court of the illustrious Charlemagne, the clergy of Britain occupied the most distinguished station; and, of these, none were more conspicuous for talent, or more respected for virtue, than the venerable, the benevolent Alcuinus, an Abbot of Canterbury, who having, in the year 790, been sent by Offa, king

of Mercia, on a mission to the Emperor Charlemagne, was prevailed on by him to settle at his court, and become his instructor in science. To this excellent man the University of Paris, which has produced so many learned men, owes its origin: and at his instigation similar establishments were founded in the chief towns of France and Italy. So highly indeed were these philanthropic services appreciated, not only in those countries which reaped the most immediate advantage from them but throughout the civilized world in general, that they obtained the universal applause of all the literary men of the age; one of whom, a German Poet, cited by Camden, declares his admiration of Alcuinus in the following classical and expressive lines;

*" Quid non Alcuino, sacunda Lutetia, debest
Instaurare bonas tibi qui feliciter artes,
Barbariemque procul solus depellere cepit."*

Such was the man who raised by his individual merits the character of the British nation, and above all of the British Clergy, to its proper place in the estimation of foreign countries, and who, although a churchman, does not appear to have been less learned in the science of Medicine than Theology: and it is evident, from the following lines in one of his poems, that both the study and the practice of medicine were

* Paris, for eloquence no justly fam'd,
To Alcuin's zeal what does not Paris owe?
Fair Learning from her torpor he reclaimed,
And bade her torch with new-born lustre glow.

familiar objects with the members of the Imperial Academy, which was the foundation of the University that was afterwards established.

" Accurrunt medici mox Hippocratica testæ,
Ille veras fumat, herbas hunc moset in olla,
Ille coquit pultes, alter sed pocula prebet*."

Alcum. Carm. p. 329.

At length, notwithstanding all Charlemagne's solicitations to the contrary, this truly excellent man quitted the gaieties of the court, and retired to his Abbey of St. Martin's, at Tours, whence he maintained a regular correspondence with the Emperor, during the remainder of his life, which he closed at his Abbey, in the year 804, full of years and honour.

But while the clergy of Britain set so praiseworthy an example of virtue united with learning, those of France pursued a diametrically opposite course; and were, with but few exceptions, distinguished only for their ignorance, their licentiousness, and their contumacious perseverance in the practice of medicine, in equal contempt of the commands of the Pope, and the decrees of the Councils; nor was it till after

* Next Physic's sons their useful labours ply,
And all their varied arts of healing try.
Life's sanguine stream here one commands to flow,
The ample bowl another holds below;
Another here each active simple blends;
The gruel there another's skill attends,
And one, again, the soothing draught prepares,
Of power to blunt each pang of mortal cares.

the expiration of three centuries, that common sense and a regard for the public good finally gained the day, and triumphed over their unholy artifices. It was only by a special bull, permitting physicians to marry, which the Cardinal d'Estouteville procured from the Pope, that medicine became divorced from her pernicious union with theology, and a final period was put to the shameful impostures and superstitious practices which prevailed.

It was during the thickest darkness of this age of clerical ignorance, imposture, and presumption, that the School of Salerno, (a town situated within the territories of Naples,) gradually and silently emerged from obscurity, and attained at length the highest pitch of celebrity. It was indebted for its origin to a monastery of Benedictines, established in that town at an early period of the Christian history, the monks of which had for many centuries practised the art of healing in the ignorant and superstitious manner usual with the priests of the pagan temples previously to the days of Hippocrates, calling in the aid of rotten bones and pretended relics, the little finger of one saint, or the great toe of another, to work upon the credulity of the vulgar, and cast an air of mystery over their impostures. At length, about the ninth and tenth centuries, they began to apply themselves regularly to the study of the best writers on Medicine, both among the Greeks and the Arabians, chiefly taking as their guides the works of Galen, whom they regarded with a veneration almost bordering on

superstition. Thus they gradually emancipated medicine from the trammels in which it had so long been held, raised it progressively to its proper rank among the sciences, and obtained for themselves wealth and reputation through the celebrity of the pupils whom they had the merit of instructing.

Among those who distinguished themselves for their proficiency in Medicine at this School, as it rose to importance, the first whom we meet deserving of notice is Constantine the African, so called from Carthage, the place of his nativity, where he was born about the year 1010. By him a knowledge of the Greek and Arabian systems of Medicine was first introduced into Italy. Constantine, having in early youth travelled into the East, took up his residence at Babylon and Bagdad for the space of thirty years, during which he applied himself sedulously to the acquisition of the Oriental languages and learning, of which he made himself completely master: he then returned to the place of his nativity; but, finding his life in danger from the malignity of his townmen, he soon quitted Carthage and took refuge in Apulia, in Italy, about the year 1060. He brought with him letters of recommendation to Robert Guiscard, the reigning Duke, from whom he received the appointment of Secretary; which, obliging him to reside, while he held it, at the town of Reggio, in Calabria, obtained for him the name of Reghinus, by which he is sometimes called. At length he entered the Benedictine Monastery on Mount Casinus, where he closed his

useful life in 1087, having outlived his patron Duke Robert only two years. Constantine was the author of a considerable number of works, which, notwithstanding the freedom wherewith he employed the materials left by the ancients, are not destitute of originality. He translated Isaac's book on Fevers from Arabic into Latin; and also made some translations into Greek. According to his own account, he was the first who wrote expressly upon disorders of the Stomach; and this work, which he dedicated to Alfano Primus*, is not only well arranged and copious, but exhibits, in a condensed form, almost every important fact connected with his subject, which is to be found scattered through the volumes of the ancients. In this work he makes repeated mention of John of Damascus†, who appears to have been altogether distinct from the Mesue of the Arabians, for he speaks of Medicines described by him, of which not the slightest mention is to be found in the works handed down to us as those of Mesue.

Constantine also wrote a distinct treatise on Melancholy, which is thought by many to have

* Alfano was Archbishop of Salerno from 1057 to 1087, and distinguished for his acquaintance both with general literature, and with the study of medicine.

† That John of Damascus could not be the same with the Arabian writer Mesue, who flourished at Bagdad about the year 865, in the time of the Caliph Haroun Al Raschid, is evident from his not being Avenzoar, who did not flourish before the end of the tenth or beginning of the eleventh century—hence he could not have lived before the middle or close of the eleventh century, and must have been a contemporary of Constantine's.

been little more than a transcript of the work of Rufus the Ephesian, on the same subject, of which Galen speaks in such high terms of praise, and which, although now unfortunately lost, was extant at the time at which Constantine wrote. He also composed another work, which he termed his *Common-place Book*, and dedicated to the Abbot of his Convent. This work was a collection of all the important facts in the Theory and Practice of Medicine, compiled, as he admits himself, chiefly from the Greek and Latin writers. He gives as a reason for this compilation the fact of there being no similar work extant which was properly executed; some being too concise, and others too diffuse, while he regarded and speaks of his own work as no bad commentary upon the voluminous labours of both Hippocrates and Galen. Notwithstanding the high encomium which he thus passed upon his own work, to the disparagement of all those that preceded it, it will be found, upon comparison with the *Almaleci* of Haly Abbas, to be little more than a translation of this last, unaltered even in the number and divisions of its books and chapters. The writings of the Arabians being, at this period, unknown in Italy, and those of the Greeks nearly extinct, he ran little risk of being detected as a plagiarist. Neither Haly Abbas, from whom it is almost wholly taken, nor Isaac, nor a single Arabian writer, is once introduced by name in the whole of this laboured performance.

Marcellus Empiricus was an equally daring plagiarist, transcribing every thing, without the

slightest attempt at acknowledgment, from the writings of Scribonius Largus.

The works of Constantine, notwithstanding the celebrity they obtained at the time of their appearance, contain little of importance that is new: for the age in which he lived, he possessed a share of erudition to which no rival could pretend, and thus he shone as a luminary of the first magnitude in a starless sky; and his style, though disfigured with numberless Arabicisms and Latin phrases, peculiar to the lower ages, appears even elegant when compared with that of his contemporaries, as, for example, with Gariopontus, who borrowed almost wholly from Theodore Priscian. He was a zealous promoter of Medical Science, and it was through his influence that Duke Robert was induced to extend that patronage to the School of Salerno which laid the solid foundation of its future celebrity.

Great indeed was the rapidity with which Salerno rose to distinction after the death of Constantine. From the commodiousness of its situation, no less than the reputation of its School, the town of Salerno became, at the period of the Crusades*, a place of great resort for the multitude of warriors of all nations, who were continually passing and repassing between

* It was in the year 1094, that Peter the Hermit, a native of Amiens in Picardy, and a man of great zeal, courage, and piety, first stirred up the princes and people of Europe to attempt the recovery of Palestine from the dominion of the Saracens, and thus occasioned those memorable wars which took the name of Crusades from the badge worn by all those engaged in them—a white cross.

Europe and Palestine. Thus it rapidly rose to the full zenith of its splendour, which it attained early in the twelfth century. Among other visitors of distinction who honoured Salerno with their presence at this period, was Robert, Duke of Normandy, who, having gone among the first Crusaders to Palestine, and having been wounded there in the arm with a poisoned arrow, came to Salerno for medical advice about the year 1100, accompanied by his wife Sybilla, daughter of Galfredus Count of Conversana, a lady of distinguished beauty and accomplishments, for whose sake Robert had sacrificed his chance of succeeding to the throne of England on the death of his brother William Rufus, by wearing away his time with her in Italy, when he should have been on his way to England. Robert's wound had, from neglect, degenerated into a fistulous ulcer. Upon a consultation among the medical men of Salerno, it was decided that the only means of extracting the poison which prevented the wound from healing was suction, could any person be found bold enough to undertake so disagreeable an office. The high-spirited and generous Prince, however, refused to listen to the proposal of a remedy which threatened the operator with danger; but the advice of the physicians coming to the ears of his wife, whose affections were wedded with her hand to her husband, she resolved not to yield to him in generosity; and, taking advantage of an opportunity when his senses were locked in opiate slumbers, she extracted the poison from his wound with her own mouth, and thus rescued

from the grave, at the price of her own existence, a husband without whom she felt the gift of life would have been valueless.

Such was the occasion, and such the tragical issue of the gallant but unfortunate Robert's visit to Salernum, which has been handed down to posterity more through the celebrity of a Medical Poem * written in honour of his visit and inscribed to him, than through the admiration which so rare an instance of conjugal love and disinterested devotion is entitled to claim from all ages. The work in question was a poetic treatise on the art of preserving health, written, out of compliment to Robert, in Leonine verse, (which was the form most popular, at that period, among the Normans,) by John of Milan, and it became in a little time so celebrated as to attract numberless commentators during the twelfth and following centuries, and, among the rest, Arnold of Villa Nova. It was inscribed, in the name of the whole College of Salernum, to Robert. This work, which was entitled "*Regimen Sanitatis Salerni*," not only contained the principal rules for preserving health, but treated also of the Six Non-Naturals; and contained a chapter on the treatment of fistulous ulcers, in consequence of the wound under which Robert laboured having

* Since this was written, a new edition of this celebrated medical Poem has been advertised for publication in London, (with an Introduction and Notes, by Sir Alexander (ake,) under the title of "*REGIMEN SANITATIS SALERNITANUM; a Poem on the Preservation of Health, in Rhyming Latin Verse, addressed by the School of Salerno to Robert of Normandy, son of William the Conqueror.*"

assumed that character. Few works obtained a greater share of popularity from the instant of its appearance than this of John of Milan, or retained their popularity longer: and on this account it had many imitators.

Duke Roger, the first King of both the Sicilies, in the year 1130, and his successors William the First and Second, following the example of their predecessors, held out every encouragement to the improvement of medical knowledge at Salerno, insomuch that Orderic Vital, the Historian, who flourished at this time, and died in 1141, predicted that the College of Salerno would become famous throughout the world, as well for the learning of its professors, as the number of its scholars.

Among other imitators of the "*Regimen Sanitatis*," was Ægidius*, a native of Athens, and a monk of the order of St. Benedict, who was appointed first physician to Philip Augustus, in the latter part of the twelfth century. Ægidius, in imitation of John of Milan, wrote a poetic treatise

* Besides this Ægidius, we have some account of another of the same name, who was surnamed Atheniensis, and flourished as a Physician and Philosopher under the Emperor Frederick II. who died in 1250. This Ægidius also became a Benedictine, and was the author of several treatises, of which the principal are those "*De Pulsibus*," and "*De Venenis*." Being accidentally wounded by an arrow, he would not suffer the wound to be dressed, that he might exercise his fortitude in bearing pain. The former Ægidius, whom Haller calls "*ex Salernitanâ Schola Medicus ac Poeta*," was a Canon of Paris, and named Ægidius Corboulensis, or Gilles de Corbeil, his work on the Line and Pulse with an Explanation and Commentary, by M. Gentilis de Fulgineo, was printed at Venice in 1494, at Lyons in 1505, and Basil in 1579.

tise on the properties of Medicines, and on the Pulse and Urine, in Hexameter verse, with little regard, however, to the accuracy of his versification. In this work he finds fault with Constantine, for having written too diffusely, and Philaretus, too concisely, respecting the pulse and urine. He also makes some mention of those who were educated at Montpellier in France, which city was at this period celebrated for its School of Medicine, although, as our countryman John of Salisbury informs us, much reduced from its original splendour. This poem, such as it was, obtained, like its predecessor, so much popularity at the time, that it became the text book of the schools, and employed the pen of Gentile, one of the ablest commentators of the age, in expounding it. Contemporary with the author of this Medico-Poem was, as Leland informs us, another Egidius, an Englishman, and author of several works which appear to have been lost.

Such was the good effect produced by the encouragement given to literature at Salerno, by the first kings of the two Sicilies, and so fully was the prediction of Vital fulfilled, that, almost within half a century after the death of that historian, it obtained, from Benjamin of Tudela*, the praise of being the best school of medicine among the children of Edom†.

* Tudela. A city of Navarre, in Spain, situated on the right bank of the Ebro, about twenty-three leagues NW. of Saragossa.

† The name by which Benjamin of Tudela distinguishes the Christians of the West.

He visited Salerno, about the year 1172, on his return from travels over nearly the whole of the then known world. Benjamin*, in the itinerary of his travels, distinctly enumerates the several cities which were inhabited by the Jews at that period, with the number resident in each, and adds that many of them pursued the practice of medicine, not merely among their own tribes, but also among the Moors and Christians, notwithstanding the express prohibition, by the canon law of that period, against persons of the Jewish persuasion practising medicine among Christians. But laws are powerless when not in conformity with public

* Benjamin was a Jewish Rabbi of great sagacity and sound judgment, with a strict regard for truth, united to great skill in the sacred laws, and a superstitious veneration for the institutions of Moses. He was born at Tudela about the middle of the 12th Century, and, being anxious to visit his countrymen in the east, whom he hoped to find in such a state of power and opulence as might redound to the honour of his nation, commenced his travels in 1160, proceeding from Spain to Constantinople, and as far as Conch Tartary. He then returned through various parts of India, and, embarking in the Indian Ocean, visited several of its islands, and reached Europe by way of Egypt, (after an absence of thirteen years,) with a vast fund of information respecting parts of the world at that time little known. He died in 1173, a few months after his return. His Itinerary, the first edition of which appeared at Constantinople, in 1543, with a Latin translation, by Benedict Arias Montanus, contains an account of his travels, intermixed with statements, no doubt somewhat exaggerated, of the power and prosperity of his Jewish Brethren. Caspar Oudin, however, states that he had a most religious regard for truth, and that his observations and accounts, like those of our celebrated countryman Bruce, have proved upon examination to be generally exact. See *Oud. Comm. de Scrip. Eccles. tom. ii. col. 1524. Lipsie 1722.*

opinion, and those enacted for the discouragement of the Jews were only efficient so long as the Christians maintained something like an equality of talent, wealth, and learning, with their Hebrew brethren; no sooner, therefore, did the balance decidedly preponderate in favour of Jewish over Christian learning and talents, than the laws became virtually a dead letter, popular prejudice yielded to the force of private interest, and Jews were openly employed, and publicly appointed physicians to the first potentates of the day, whose example was rapidly followed by their subjects, in utter disregard of the senseless thunder of unpopular and discountenanced enactments. Thus, we find almost every Potentate in Christendom, both before and during the period in which Benjamin flourished, availing himself of the superior medical skill of the Hebrews, employing Jewish physicians, and remunerating their services with princely salaries. The Emperor Charlemagne retained about his person two Jewish physicians, Farragutus and Buhalyliha Bengesta, who drew up, at his desire, a work entitled *Tucuin*, or *Tables of Health*, not materially different from that since published under the name of Elluchasem Elimithar. Charles the Bald, who died in 877, also employed a Jewish physician of the name of Zedekiah, who was accused, but with what justice was never known, of having shortened his days by poison. And, towards the close of the tenth century, the Jews being almost the only persons who understood the learning of the Ara-

biens, we find persons of this persuasion not only holding the first rank throughout Europe as physicians, but even employed professionally, and remunerated liberally, by the Popes themselves. Their superior knowledge gained them also similar, if not superior, advantages among the Saracens in Spain, although the Moorish even exceeded the Christian prejudice against them. Joining with the Moors on their invasion of Spain, and expulsion of the Christians from thence about the year 714, they obtained a settlement in the cities of Cordova and Grenada. In Asia they are said to have had an academy or university at Dora, as early as the year 204, and to have enjoyed the confidence of many of the earlier Caliphs, by whom they were employed, in all matters requiring a more than ordinary skill, knowledge, and address. From this short review of the general state of learning among the Jews, both at the period and for many centuries before Benjamin flourished, we may be able to form some estimate of his probable competence to decide upon the merits of the Salernian School, especially when corroborated by the concurrent testimony of other writers of the most unquestionable authority.

Frederick II., Emperor of the West, who was not only a man of profound learning himself, but also a most munificent patron of Literature, endowed the College of Salerno with peculiar privileges*, in the year 1225, and at the same

* Among the privileges, or rather monopolies, granted by the Emperor at this time, it was not perhaps one of the

time laid down a course of study to be followed by the pupils, and regulated the several examinations which the candidates for degrees were to undergo previously to being licensed to practice either in Medicine or Surgery. These regulations, (many of which evince the soundest judgment,) together with the great privileges granted by the Emperor, had the effect of raising Salerno rapidly to the zenith of that reputation which it retained for such a succession of years.

The statutes of Salerno are of extreme antiquity, but, notwithstanding, admirably adapted to the object which they had in view, and drawn up with no inconsiderable degree of ability. Being the first of their kind, they served as a model for those which were afterwards framed for the government and discipline of similar establishments; hence, a short notice of their leading features may not be uninteresting.

The College was placed under the protection of St. Matthew, and was styled, according to the inscription on its seal, "*Civitas Hippocratis*," the City of Hippocrates. The foundation consisted of ten Doctors or Professors, whose seniority was regulated by the dates of their appointments. The examination for degrees was conducted with the greatest strictness, and the works in which the candidates were examined as to their proficiency in their studies

least important, that the privilege of granting degrees and a licence to practice was restricted to the Colleges of Salerno and Naples.

were the Therapeutics of Galen, the beginning of the first Canon of Avicenna, or the Aphorisms of Hippocrates. Candidates for the degree of Doctor of Medicine were required to have attained the age of twenty-one, and to produce testimonials of having studied Medicine under competent professors during the space of seven years. For admission among the body of Surgeons, it was necessary to have devoted twelve months at least to anatomical pursuits. The candidate was required to take, on being admitted, an oath of conformity with the laws and usages of the College, to refuse all fees or remuneration for attendance on the poor, and not to enter into any lucrative compact with a druggist or apothecary. Having sworn faithfully to observe all these regulations, a book was placed in his hand, a ring upon his finger, and a laurel crown upon his head, and he was then dismissed with a kiss of Peace. Besides the statutes relating to the course of study and forms of admitting candidates to their degrees, there were many other provisions for regulating the practice of medicine within the jurisdiction of the University, and more especially the department of pharmacy, obliging the druggists and apothecaries not only to compound their medicines faithfully, according to the prescriptions of the physicians, but also to sell them at a price regulated by competent authority, and not according to their own uncontrouled caprice.

Thus favoured and encouraged by the greatest princes, the School of Salerno continued for

many ages to shoot a cheering ray of intellectual splendour athwart the Cimmerian darkness which enveloped almost every other portion of the christian world. The various professors were men distinguished for their learning, their talents, and their assiduity : and, under the auspices of the Emperor Frederick, they not only multiplied copies of the works of the Arabians, but published translations of them into Greek and Latin : and, although this had the effect of causing the original writings of the Greek Physicians to slumber in obscurity for a period of two or three hundred years, these translations from the Arabic were not without their use, since they kept alive the recollection of the Greek writers, and eventually led to their being sought out and rescued from oblivion.

But, as decadence is the inevitable fate of every thing on earth, and as revolutions take place in the Arts and Sciences no less than in States and Empires, so also the glory of the Salernian School, which had so long rivalled every contemporary in the number of its students and the celebrity of its professors, was doomed to decay. It already exhibited a tarnished splendour at the commencement of the fourteenth century, and had so far declined from its original lustre, even towards the middle of that century, as to have given occasion to Petrarch's observing about that period—"*Fuisse Salerni medicinæ fontem fama est ; sed nihil est quod non senio exarescat.*" (Report speaks of Salerno as having been a fountain of medical

knowledge; but there is nothing which does not become dried up by age.)

Besides the writers already spoken of as belonging to the School of Salerno, it boasted likewise of Enoë, Garinpontus, Nicholaus, and others, who were far from deficient in merit, and were accounted prodigies of learning in those ages of darkness and ignorance, of credulity and superstition.

CHAPTER VII.

Progress of Medicine from the Tenth to the Sixteenth Century—General State of Ignorance—The Popes themselves charged with Magic—Albertus Magnus; teaches Medicine at Paris and Cologne, having the celebrated Thomas Aquinas among his pupils, his skill in Chemistry subjects him to the imputation of Magic; erroneously supposed to have invented fire-arms—The three first Chemists in Europe—Roger Bacon; his rapid progress in Knowledge both at Oxford and Paris; assumes the Franciscan habit; settles at Oxford; popularity of his Lectures, accused of Magic; his Lectures prohibited; imprisoned; sends a copy of his works to Clement IV., who releases him, re-imprisoned; liberated by order of Nicholas IV.; death—Peter de Apono—Gentili—Arnoldus—Raymond Lully—Brunus—Theodoric—Gulielmus de Silierto—Lanfranc—Gordonius—Mundinus—Sylvaticus—Gilbertus Anglicanus—John of Gaddesden—Glanville—Guy de Chauliac—John Arderne—Valescus de Taranta—Savonarola—Alexander—Scribanius—Lithotomy practised by Colot—Achillini—C. Aurelianus—Sylvius—Benedictus—Barbarus—Sutor Anglicanus—Syphilis—Cumanus—Leoncenus—Torella—Jacobus Cataneus—Maynard—Introduction of Guaiacum—Application of Chemistry to Medicine.

THE æra at which we have now arrived, although not prolific in great names or extraordinary discoveries in the department of medicine, is not, however, wholly barren of incidents worthy of notice, or names deserving of commemoration.

In the universal ignorance which at this time enveloped the whole christian world, pre-eminence

in knowledge often became dangerous to its possessor, and even the triple crown of the pontiff, however it might secure its wearer from the terrors of the Inquisition, was impotent to screen him from the vituperations of the malevolent, when he dared to soar above the muddy level of the age, and indulge in the exercise of those nobler faculties which alone distinguish man from the brutes of the field, and exhibit him in the exalted rank of a being, made in the likeness, and participating, however humbly, in the attributes of his omniscient creator. Several of the Popes, as we learn from high authority, were regarded during the eleventh and succeeding centuries as Magicians, solely on account of their attainments in Mathematics and Philosophy.

When, therefore, the sanctity attached to the character of the Pontiff, as successor to the chair of St. Peter, was insufficient to protect him from the imputation of practices utterly irreconcilable with that supposed sanctity, we cannot be surprised that men of less exalted rank should become the victims of calumny, and the objects of persecution, whenever they ventured to emancipate their minds from the slavish trammels of superstition, penetrate the hidden mysteries of nature, and dare to think or act for themselves. To the ignorant the book of nature and the records of inspiration were as a sealed volume, to unclose which was cunningly taught, by an article of the pseudo-religion of the day, to be an act of the deepest impiety—and men were taught to view knowledge as a kind of Pandora's box, which,

if opened, would let loose an inundation of misery and pestilence to desolate the earth.

Yet, in these ages of darkness, spirits were found even among the Pontiffs themselves, daring and inquisitive enough to attempt to raise the mysterious veil which shut out knowledge from the vulgar gaze; and among the monks and clergy, the sole depositories of the little learning of the age, some few meteors shone out, at long and dreary intervals, with a brilliancy which for a time promised to dissipate the surrounding darkness.

Of this description was the celebrated Albertus Magnus, whom the fabulous records of his age have handed down as possessed of knowledge far exceeding the share which falls to the lot of the most gifted, and powers which partook of the character of superhuman. The date of his birth is a point by no means satisfactorily determined, being placed by some at the close of the twelfth, and by others in the fifth year of the thirteenth century. He is, however, admitted by all to have been born at Lawingen in Suabia, and educated at the University of Pavia; from whence he proceeded to Paris, where he took the degree of Doctor of Medicine, some time in the year 1236. Happening, during his residence in the metropolis of France, to hear the celebrated orator Father Jourdain preach, he was induced to assume the habit of the Dominicans, to which order that Father belonged. He, nevertheless, became a most popular lecturer in Philosophy, Medicine, and Theology, both at Paris and at

Cologne, at each of which places his lectures were attended by crowds of admiring auditors, and boasted, among others of his pupils, one no less illustrious than the celebrated Thomas Aquinas. On the death of Father Jourdain, he was promoted to the rank first of Vicar General, and afterwards of Provincial of that order: in 1260, he was raised to the see of Ratisbon, which he retained only for three years, and then retired to Cologne. From thence he proceeded on a missionary tour through Germany and Bohemia, to preach a fourth Crusade against the Turks; and, in 1274, we find him assisting at a Council of the Church held at the city of Lyons. From this time, to the date of his death, in November 1280, he resided almost wholly at Cologne, where he occupied himself chiefly in instructing the religious of his order. He was a most voluminous writer, and employed his pen upon a vast variety of subjects, as Arithmetic, Astronomy, Astrology, Geometry, Chemistry, Optics, Music, &c. Several of the works, however, which have been imputed to him, are undoubtedly spurious, especially the treatise "*De secretis mulierum, item de virtutibus herbarum, lapidum, et animalium*," which was the production of his pupil, Henry of Saxony. They were all collected and published in twenty-one folio volumes at Lyons, in the year 1615, by Father Jami, a Dominican of Grenoble. Albertus is said to have devoted much of his time to the study of Chemistry, to which he was no doubt led by the search after the Philosopher's stone and the Elixir Vitæ, those

two *ignes fatui* which deluded the wisest men even at a much later and more illuminated age. His proficiency in this science, as well as in Mechanics and other branches of general knowledge, in which he was far superior to the most learned of his contemporaries, subjected him to the imputation of magic, notwithstanding his belonging to the order of the Dominicans, who wielded at that time the thunders of the Inquisition with such relentless severity against all who were suspected of being addicted to these arts. He constructed an *Androides*, or Automaton figure, which the ignorant multitude, ever ready to listen to the marvellous, firmly believed to be a familiar spirit, by whom he was assisted in his supposed conjurations. This figure, we are told, was so artfully formed as to be able to speak, and perform a number of other feats which may well have passed for supernatural in those days, but which, no doubt, fell far short of the apparently miraculous performances of the Automaton exhibited some years since by Signor Maillardet, or, still more recently, by that astonishing artist *Protopographus*, whose extraordinary likenesses are now in the possession of so many.

Some have, by a strange anachronism, given Albertus credit for the invention of fire-arms; without perhaps recollecting that the discovery of gunpowder, generally ascribed to our illustrious countryman Bacon, at a considerably later period, ought to take the precedence of fire-arms, which, without gunpowder, would have been of little practical utility!

Before the days of Albertus Magnus and of Bacon, the knowledge of Chemistry, or, more correctly, Alchemy, was restricted almost wholly to the Arabians, who inhabited Asia, Africa, and Spain. Now, however, this fascinating science was communicated to the inhabitants of Germany and of England, through the exertions of Albert the Great in the one, and Roger Bacon in the other country ; who, with Peter of Maharn Court, in Picardy, were at this period, if we except the Saracens in Spain, the only three persons in Europe possessing the slightest acquaintance with this art.

Roger Bacon, our distinguished countryman, and the great founder of true Philosophy in Britain, was born at Ilchester, in the county of Somerset, some time in the year 1214, and received the first part of his education at Oxford, from whence, according to the fashion of the day, he removed to the University of Paris, where he soon attracted notice by the assiduity with which he applied himself to his studies, and the rapidity with which he advanced in the path of improvement : and, in testimony of his decided superiority in all the literary and scientific attainments of the age, he was early promoted to the dignity of Doctor in Theology. At what time, or in what place, he assumed the monastic habit of the order of St. Francis, whether in France, or after his return in 1240, to the land of his nativity, is not known with certainty, nor is the knowledge of any material moment. That he might be enabled to prosecute his studies with

more advantage, and with less danger of interruption, Bacon established himself, on his return from France, at the University of Oxford, where tradition yet cherishes his memory with fondness, and delights in recurring to the fancied scenes of his labours, and the spots supposed to have been hallowed by his presence.—Where is the Oxonian, who has not eyed with holy gaze the apocryphal remains of Friar Bacon's study? or felt his self-importance flattered by the recollection of belonging to a seminary which boasts an Alfred for its restorer, a Bacon for its ornament, and a Canning for its glory?

Such was the esteem in which Bacon was held, and so great were the expectations formed of the advantages likely to accrue to science from his labours and experiments, that he was enabled, by the assistance of contributions liberally made in every direction, to accumulate a library of the most valuable works, supply himself with the most extensive apparatus, and prosecute the most diversified experiments, at a cost of not less than £2,000; a sum which would be regarded as considerable in our own days, and which was enormous for the age in which Bacon lived; when the value of money infinitely exceeded that of the present time. As might have been expected, however, the growing reputation of the sage awakened in time the envy of his brethren of the Franciscan order, and the fears of the ministers of an idolatrous and deceitful religion; who anticipated, in the increasing illumination to which

his lectures gave birth, the approaching exposure of their own system of imposture, and the termination of their unholy gains. Hence, as a commencement of the system of persecution, which they had predetermined to adopt, as well as to silence any clamour which the popularity of their victim might excite against the cruelty, iniquity, or injustice, of their proceedings, the brethren of his order circulated, with the most malignant assiduity, calumnies whose baseness was only equalled by their falsehood, and exhibited his scientific experiments as effected through the operations of magic and the agency of the spirits of darkness; a tale well calculated to gain credit with the ignorant and the superstitious, who placed their faith in the keeping of men as ignorant and much more wicked than themselves, and regarded every thing which transcended the narrow limits of their benighted understandings as the result of supernatural power. Having thus successfully prepared the pitfall for the destruction of the innocent victim of their guilty apprehensions, and enlisted the worst feelings of the populace in their unrighteous cause, they proceeded more boldly, as well as more directly, to the attack; and so far prevailed, as, under the stale pretence, that the innovations which Bacon had introduced into the doctrines of science were calculated to disturb the tranquillity of the Church, (or, in other words, to teach men to think and inquire for themselves, and thus detect the worse than blasphemous impostures of the Priests and Monks,) to obtain an order prohibiting the

farther continuance of his lectures. Not satisfied with thus drying up the fountain of knowledge at its source, but anxious to prevent the possible leakage of the smallest drop which could tend to revive the spirits of their drooping countrymen, and invigorate their powers of investigating the truth, and penetrating through the mists of imposture, they at length confined him so closely, as to deprive him even of the cheering consolations of friendship, and prevent his receiving the supply of food required for the sustenance of exhausted nature—thus they hoped, not only to prevent the farther diffusion of his doctrines, but also to break his generous spirit, and mould him into a willing tool for the furtherance of their own purposes.

The prelates and the Monks, as he complains himself in his letter to his enlightened and liberal-minded friend, Pope Clement the fourth, were apprehensive his writings might extend beyond the putrefying atmosphere of their convent, or meet the gaze of other eyes than their own and the Pope's.

But, although the novelty of his doctrines, and the tranquillity of the church, were ostentatiously put forward by the persecutors of Bacon as the colourable pretexts for their injustice and their severity, both they and their victim well knew that they were by no means the true, the exciting, causes of their affected zeal and their malignant activity. Had the cause of religion alone been, as they falsely pretended, in danger, Bacon might have continued to lecture unmolested by them, and

his doctrines to fall upon their unopened, or inattentive, ears—his crime was held to be of a deeper dye than a mere attack upon Christianity—the Majesty which he invaded surpassed, in their short-sighted and selfish ideas, the Majesty of Heaven—he dared to reprobate—hear it, ye heretics, and tremble—hear it, ye faithful, and shudder!—he dared to reprobate the vices, the ignorance, the irreligion, and the licentiousness, of the priests—and those men, whose whole lives were a libel upon the holy calling they profaned—those men whose conduct did more to destroy true religion than the lectures of a host of Bacons—those men who regarded the altar merely as a source of ungodly gain, and the means of continuing their career of infamy and debauchery—were sufficiently sensitive, when their own abominations were held up to public obloquy and contempt; and, although incapable of correcting the crookedness of their own ways, active enough in their endeavours to calumniate and to overwhelm the man who had the courage to reprobate their conduct, and the virtue to recommend an improvement of their morals.

Another crime of Bacon's, unpardonable in the eyes of the priesthood, was his intimacy with Robert Greathead, the virtuous and talented Bishop of Lincoln, who, with a manliness befitting the exalted station he held in the church, and an integrity worthy of a minister of the altar, addressed a letter of salutary reproof to Pope Innocent IV., and had not hesitated to express, in confidence to his friends, his unqualified

belief in the identity of the Pope with Antichrist : in addition to all which, Bacon had himself been guilty of the same offence as had been committed by his friend the Bishop, having also written freely to the Pope on the subject of reformation in the Church; pointing out its urgent necessity, and anticipating those results which ultimately followed from its pertinacious refusal.

These were crimes which detected hypocrisy never could forgive—charges which interested malevolence never could forget. But, however the arm of power might imprison the body, or controul the actions; it was unable to deprive Bacon of that esteem which the knowledge of his virtues commanded, or that respect which his pre-eminent talents were sure to obtain. Notwithstanding the calumnies of the monks, and the falsehoods of his persecutors, such was the opinion entertained of Bacon by the Cardinal Bishop of Sabina, who was at this period resident as Legate from the Pope in England, that, regardless of the pretended charge of heresies said to be contained in his works, this single-hearted Prelate requested Bacon to furnish him with a complete collection of his numerous and important writings. Apprehensive, however, of the consequences of openly violating the prohibition of his fraternity, which peremptorily forbade his communicating copies of his works to any person whatever, Bacon at first refused compliance with the wish of this exemplary Bishop, who, being informed of the real cause of the refusal, good-humouredly submitted to the mortification. When, however, on the

death of Urban the Fourth, in the year 1264, the virtuous Bishop of Sabina was elected to the vacant chair, under the title of Pope Clement IV., Bacon, on hearing the welcome tidings of the exaltation of his friend to the highest station in the Church, lost no time in acquainting him with his readiness to comply with the wishes he had formerly expressed, provided his compliance would be unattended with danger to himself, from being a violation of the prohibition he had received. Clement having, in reply, assured him of his protection against any interference of his own order, he began, in consequence, to collect, arrange, and improve his several works, and, having digested the whole into one volume, under the title of "*Opus majus*," he sent it to the Pope in 1267, by John of Paris, a favourite pupil, whose promising talents had induced him to undertake the task of his instruction. This present proved so grateful to the Pope, that he afforded Bacon in return every encouragement and facility in the prosecution of his studies, which his ample power enabled him to bestow. Unfortunately, however, for Bacon, the reign of this virtuous Pontiff drew to a rapid close, and his death, in the following year, transferred the sceptre of power from the hands of an indulgent friend to those of a remorseless and implacable foe, and one too, who, having commenced with injury, was not disposed to change it for oblivion. After the death of Clement, his old persecutor and vindictive adversary, Jerome de Esculo, or Ascoli, the General of the Franciscans, to whose order Bacon

belonged, and with whose unjust severity we have been already made acquainted, obtained the full sanction of Nicholas III. to imprison him anew, and prohibit his works from being read, on the false and frivolous pretext of their containing treatises on alchemy, astrology, magic, and necromancy: the true, though concealed, motive being an apprehension of the effects which the light of knowledge was calculated to produce upon a benighted world.

The members of a corrupt and corrupting church were keen-witted enough to see the exposure of their own enormities, as the unavoidable result of the growth of knowledge and the improvement of morals among men; but they were destitute of that moral integrity, which, by leading them to commence the necessary reformation among themselves, could alone avert the consequences they foresaw. With insensate folly they attempted, by the construction of mounds across the stream, to arrest the farther progress of the current, forgetting that the accumulation in the rear would only be augmented by the temporary interruption, and become irresistible from the concentration of its force. With an equally short-sighted wisdom, Jerome, wielding the delegated authority of Nicholas and his successors*, detained the unfortunate

* On the death of Clement IV. he was succeeded by Gregory X., who, dying in 1276, was followed by Innocent V., who enjoyed his honours but a few months, and resigned them in the course of the same year to John XX. John died in 1277, and was succeeded by Nicholas III.; who died in 1280, making way for Martin IV.: who, in like manner, resigned the triple crown in 1285 to Honorius V.; he was succeeded

victim of his fears and his animosity upwards of ten years in confinement. On his succeeding at length to the Pontificate himself, on the death of Honorius IV. in 1288, Bacon made a fruitless attempt to conciliate his favour, and procure indulgence, by writing and transmitting to him a copy of his treatise on Old Age, with the means of mitigating its infirmities, and averting its evils: nor did he obtain his freedom till near the close of his persecutor's tyrannic existence, in 1292, when the boon of his liberation was at length granted to the intreaties of an English nobleman.

Bacon, on his release from this cruel and protracted confinement, returned once more to the banks of the Isis, and composed at Oxford a *Compendium of Theology*, of which a copy is still preserved in the Royal Library. This, which was the last production of his pen, appears, from internal evidence, to have been composed some time in the year 1291; in the year immediately succeeding which, he closed his useful but chequered life in tranquillity, in the college of his order, on the 14th of June, in the 78th year of his age.

Bacon's attainments were prodigious for the age in which he lived, and the versatility of his genius is truly surprising—nothing appears to have come aniss to him, from the study of languages to the most abstruse problems in philosophy. Of Greek,

in 1288 by Bacon's old persecutor, Jerome, who assumed the name of Nicholas IV.; being the eighth Pope in regular succession in the short space of thirty-four years, and giving an average of four years and three months for the enjoyment of the pontifical dignity by each of these successors of the humble St. Peter.

Hebrew, and Latin, he was completely master, and in Mathematics he is represented by some of his admirers as superior to Archimedes himself. His works, which are numerous almost beyond example, contain the latent germs of half at least of the most important of our modern discoveries and improvements, which his genius enabled him in some sort to foresee, and would have enabled him to realize, had he lived in a more favourable age, or under more favourable circumstances. His acquaintance with Optics was such, that persons have not been wanting to award to him the credit of having invented the telescope, although neither his own works, nor any passage of history, furnish grounds for confirming the justice of this conjecture. In Geography his researches were various and extensive: and in Astronomy his penetrating judgment enabled him to detect the errors which had crept, during a long succession of years, into the Calendar, and point out the remedy which was adopted, nearly three centuries after his death, by Pope Gregory XIII*. But it would lead us far beyond the narrow limits to which this historical sketch of our illustrious countryman is necessarily limited, were we to follow him through all the multifarious subjects which occupied his prolific genius; those works,

* Bacon was almost the only astronomer of his age, and was the first to point out the error in the Calendar to Clement IV., by whom his plan of correction would have been adopted, had not death prevented him. Bacon proposed to carry the correction of the Calendar as far back as the Nativity of our Saviour; while Gregory carried it back only to the time of the Council of Nice, in the year 325.

however, which relate to the sciences of Chemistry and Medicine fall within the legitimate scope of our limits, and cannot be passed over without some more lengthened notice.

Among other productions of his fertile pen we find one which pointed out and censured, with a just severity, some of the errors prevailing among the physicians of his day, whose practice partook, in no small degree, of the erroneous doctrines and superstitious absurdities of the times *. Mention has already been incidentally made of his treatise on the art of retarding the evils of Age, and preserving the faculties in vigour to the last; this work, which was composed in the fallacious hope of conciliating the favour of his old enemy and persecutor, Jerome d'Esculo, on his elevation to the Pontifical chair, in 1288, is yet extant, and, though chiefly a compilation from the writings of the ancients, is far from being destitute of merit. It contains many original and valuable observa-

* The following are the principal, if not the whole, of the Medical productions of Bacon's pen:

1. De Erroribus Medicorum. lib. 1.
2. De Retardatione Senectutis. lib. 1.
3. De Universis et Rebus Senium. lib. 1.
4. De Conservandis Senium. lib. 1.
5. De Procreatione Viri. lib. 1.
6. Acciditum Viri Humani. lib. 1.
7. Rationes, Mores et Mores. lib. 1.
8. De Senio et Virginitate. lib. 1.

In addition to which he wrote Five Treatises on Grammar; Six on Theology; Eight on Logic; Five on Magic; Nine on Chemistry; One on Chronology; Seven on Astronomy; Six on Geography; Ten on Optics; Twentythree on Mathematics; Six on Philosophy; and Twelve on Philology; So making a total of Ninetythree different Works, embracing nearly the whole circle of human knowledge.

tions. His fears lest his treatise should fall into improper hands have occasioned him to explain himself with an obscurity, which is far from satisfactory, on some important points, especially in the rules which he lays down for diet and medicine. He gives in it the result of his own experience; and enters into many details respecting the celebrated Tincture of Gold, which was regarded in those days as a kind of panacea, and, if not actually the long sought-for Elixir Vitæ, at least approaching nearly to it in its medicinal qualities; capable, although perhaps not endowed with the power of conferring a perennial youth on the person to whom it was administered, at least of prolonging life to an almost indefinite extent, and averting for a time the stroke of death. Bacon, in confirmation of the supposed miraculous properties of his Aurum potable, relates the case of a Sicilian peasant, far advanced in years, and bowed down beneath their accompanying load of infirmities, who, chancing to drink of a stream tinged with yellow, most probably from some ferruginous impregnation, but which Bacon concludes to have been gold, was suddenly, as the legend goes, restored to youth, and enjoyed, for many years afterwards, a long and unbroken succession of health and vigour. Why, as a fresh load of growing years accumulated, and the mortal load of infirmities returned, the peasant, after having once tasted the miraculous powers of this golden stream, had not recourse a second time to its renovating virtues, Bacon has not thought proper to acquaint us, and his silence on this important point throws, it

must be confessed, the shade of discredit over the whole narrative, which, after all, he merely gives upon hearsay evidence.

The prevailing rage among the men of science in Bacon's day, when the study of Chemistry had been but recently introduced from the Arabians, as well as at a period infinitely later and more enlightened, was the discovery of the philosopher's stone, which was to convert all the baser metals into gold, and the composition of an elixir, which was to supply the place of the tree of life, (whose fruit Adam was prohibited from plucking in Paradise,) and confer perennial youth and unfailing vigour upon man. However idle the pursuit of those philosophical *ignes fatui* may appear amid the brighter irradiation of knowledge in the present age, the substantial advantages which science has derived from their pursuit, and the important discoveries which have resulted from the vain attempts to attain these unattainable objects, have been of such magnitude, and productive of so much positive good, that we should view with gratitude, in place of regarding with scorn, puerilities to which we are so deeply indebted. That a mind like Bacon's, soaring as it usually did above the vulgar prejudices of the age, should exhibit, nevertheless, some tinge of the prevailing hue, furnishes only an additional proof of that infirmity of our nature, from which we are none of us exempt, and which brings the learned and the unlearned, the wise and the simple, in some respects, so nearly to the same level.

In the same spirit of credulity which led him to believe the anile tales of the wonder-working virtues of gold, we find Bacon extolling the marvellous properties of a bone occasionally, he says, found in the heart of a deer, and which, when taken from an animal far advanced in years, was imagined capable of endowing the fortunate person who possessed and wore it with a similar longevity. A deer of this description, whose age must have equalled nearly thirteen centuries, was to be seen, he says, as late as his own time, with a golden collar round its neck, bearing the following inscription: "*Hoc animal fuit positum in hoc nemore tempore Julii Cæsaris;*" this animal was placed in this forest in the time of Julius Cæsar.

He also extols the restorative properties of vipers' flesh, which continued to be a popular remedy in phthisical cases to a very recent period, and he relates, in corroboration of his opinion, the case of a young lady of high birth in Germany, whose constitution was so impaired by ill health that her hair and nails fell off, and her friends almost despaired of her recovery: on adopting this diet, however, and persevering in its use for a considerable time, she not only recovered her original health and looks, but even became, to all appearance, younger and more beautiful than before. Galen relates similar instances of cures effected in cases of Elephantiasis, by living on vipers' flesh, which almost exceed belief; and modern practice has proved the beneficial effects of the same diet, as an

auxiliary remedy in cutaneous disorders and atrophy: and, when we consider the nutritive and bland quality of the flesh of most of the cold-blooded animals, which, in its natural and unsophisticated state, contains not the least stimulant particle, we must admit the very strong probability which exists of these accounts being but little, if at all, exaggerated*.

* If never the art of the cook may have succeeded in corrupting the natural qualities of the flesh of the turtle, by the addition of powerful condiments and inflammatory sauces, so as to bring upon it an unmerited stigma, in its unsophisticated state, it is perhaps one of the most nutritious, salutary, and restorative, articles of diet, in existence. It was most satisfactorily proved in a case which fell but a few years since under the observation of the writer of this volume, and can nowhere find a place more appropriate for its introduction than the present. A gentleman, resident in one of our eldest and most frequented islands in the West Indies, having, from a long continued course of free living and late hours, contracted a complaint, to all appearances, confirmed phthisis, accompanied with excessive emaciation, debility, teasing hectic cough, and all the other ordinary symptoms—when wasted to but a shadow of his former self, was advised, as a last, though almost hopeless, resource, to try change of air, and endeavour to gain health from the sanative breezes of the uninhabited island of Testigos, on the coast of the Spanish Main. This is a low sandy island, destitute of human habitations, and only resorted to at particular seasons by fishermen, who come in quest of the turtle, which frequent its shores, attracted by the sight of man. Testigos could thus boast no taverns, no inns, or gaming taverns, to debauch the appetite and sap the constitution—no social parties to tempt to indolence—no loose companions to betray into intemperance. Nature alone presided within its solitary borders, and compelled obedience, however reluctant, to her salutary laws. So deplorable was the condition of the invalid, and so utterly hopeless appeared to be his chance of recovery, that, on embarking for that island, which he hardly expected to reach alive, he carried

Bacon was an advocate for the use of purgatives and abstersgents, those especially which were believed to have the peculiar property of carrying off the pituitous humours; in which recommendation he was followed at a much later period by his illustrious namesake, the Lord Chancellor Bacon, who was accustomed to say "*Nihil magis ad diuturnitatem vite facit, quam lenes hujusmodi evacuationes,*"—that nothing contributed so much to longevity as mild evacuations of this description.

Medicine had now become a general branch of education at most of the Universities of Europe: but the doctrines of Hippocrates and Galen were adhered to with such slavish servility, and the science was so fettered by the scholastic philosophy of the period, which was taught in conjunction with it, that little improvement was made, or could indeed have been rationally expected.

a supply of planks and tools along with him, for the double purpose of constructing a hut to shelter him in life, and afterwards form a coffin to receive him in death. Arrived at Testigos, he led from necessity a life of primeval regularity and simplicity, rising with the orb of day, and courting the balmy influence of sleep, as soon as the shades of evening fell—his food was the turtle's flesh, uncontaminated by the arts of the cook, which tempt the palate but undermine the health—his drink the simple element, uninflamed by the admixture of deceitful wine, or intoxicating spirit. After thus living in patriarchal simplicity for some few months, he returned to his astonished friends, so altered in appearance, and so renovated in health, that even those who had been most intimate with him hardly knew him upon his arrival, and could with difficulty be persuaded that the robust and ruddy-complexioned being before them was the same which had so recently parted from them a living skeleton—a wasted form.

The Universities which had obtained the highest reputation as schools of Medicine, and were frequented by the greatest number of students, were those of Montpellier, Paris, Bologna, Padua, Ferrara, Pavia, Milan, and Piacenza. In the year 1271, Pitard, a surgeon, whose enthusiastic ardour in the prosecution and advancement of his profession was such that he appeared almost to have been born for the express purpose of promoting its improvement, laid the foundation of the College of Surgeons at Paris; an event that was productive of the most beneficial results to this department of medical science, which became from this period successfully prosecuted in France as a distinct branch of the profession.

Contemporary with Bacon flourished Petrus de Apono, a native of Apono, a village in the vicinity of Padua, where he was born, according to his own account, in the year 1253. He was distinguished for his skill in Chemistry as well his knowledge of Medicine. He went at an early age to Constantinople, for the purpose of acquiring a knowledge of Greek, and, having made himself master of this almost indispensable acquisition, proceeded to Paris for the purpose of studying medicine and mathematics. About this time it is probable that he paid his visit to England, although some assign a later date for this event, saying that it took place in 1302; but this appears highly improbable from many circumstances about to be mentioned. Upon his return to Italy he was invited to fill a professor's

chair at Padua; whence he afterwards removed to Bologna, where his reputation attained to so high a pitch, that he received fifty crowns for every visit he paid beyond the walls of the city: and, on being sent for to attend Pope Honorius IV., (who died in 1288), he stipulated for the daily fee of 400 ducats as long as he should be detained in Rome. It is therefore far from probable that his visit to England should have taken place at the time when he must have been in the full zenith of his reputation and height of his practice, and it appears more rational to fix on some period between the completion of his studies at Paris, and his acceptance of the Professorship at Padua, or about the year 1270. Unfortunately for himself, Peter pretended to an acquaintance with Astrology, and to foretell, by its aid, the termination of diseases: by this idle boast he subjected himself to the charge of magic, and awakened the vengeance of that fearful tribunal, the Inquisition. Of this charge he was acquitted at that time, as appears from an inscription to his memory: but, upon a repetition of the accusation, about the year 1319, he was not altogether so fortunate, death alone rescuing him, at the age of sixty-six, from the tender mercies of the Inquisition, before the proceedings against him were completed. The impotent vengeance of these men of blood, however, endeavoured to pursue him even to the grave; for, he not appearing after due citation, and death being known to have occasioned this involuntary contempt,

sentence was pronounced against him for contumacy, and his body ordered to be disinterred, for the purpose of expiating on the pile the pretended heresy of the soul: the vigilance of his friends having, however, defeated the malignity of his enemies, by privately removing the body to another place of interment, the holy Office, as this most unholy tribunal was most blasphemously termed, was forced to be content with wreaking its puerile vengeance upon his effigy, which was duly consigned to the expiatory flames in conformity with the sentence.

As a medical writer, the opinions given by authors respecting Apono are various and contradictory: Bernardus Seardeonius and Naudæus extolling him in terms of the most unmeasured eulogy, while Champerius, who is followed by Freind, pronounces him to have been a man of much reading, but little judgment. Making, however, the necessary allowances for the rudeness and ignorance of the age, we shall most probably find the just estimate of his merits to lie midway between each of these extremes. During his residence at Paris, some time between the years 1260 and 1270, he composed a work entitled "*Conciliator differentiarum philosophorum, ac præcipue medicorum,*" which obtained for him great applause, and the title of "*Conciliator,*" by which we frequently find him distinguished: the object of this work, which he afterwards dedicated to Pope John the XXI. his great friend, appears to have been to reconcile the conflicting opinions of the phi-

losophers and physicians, both of his own times and of antiquity: it was first printed in folio, at Mantua, in 1472, and subsequently went through a multitude of editions in various places. He also wrote a treatise on Poisons and their antidotes, which was printed in folio, in 1474; "*La Fisionomie de Pierre de Apono*," printed in octavo, at Padua, in 1505, and an edition of the works of Mesue, under the title of "*Textus Mesue emendatus*," printed at Leyden.

Contemporary with Bacon and Apono, flourished Gentilis, who was born at Foligni, in Italy, about 1230, and studied medicine with such diligence, under Thaddæus of Florence, that he was regarded, on his return to Foligni, as one of the prodigies of the age, and reputed to be one of the best commentators upon Avicenna, whose works were then in high esteem throughout Europe. Gentilis died at Bologna, about 1310, leaving behind him several treatises which were collected and published at Venice, in 4 vols. folio, in 1484, 1486, and 1492.

Contemporary also with Bacon, Gentilis, and Peter of Apono, flourished Arnoldus de Villa Nova, or Arnaud of Villeneuve*, a town of France, (where he was born, it is said, about the year 1250,) who, having completed his ele-

* Friend says he was born at Milan, and others say he was a native of Catalonia, but the account given in the text is most probably correct, and corresponds with that of his Biographer Symphorianus Campegius, who says he passed twenty years in study at Paris, and ten more at Montpellier.

mentary studies at Paris and Montpellier, and farther improved himself by visiting the different schools in Italy, went to Spain for the purpose of acquiring the learning and language of the Arabians, and profiting by their acquaintance with the art of healing. While in Spain he formed an acquaintance with the celebrated Raymond Lully, (who dignified him with the title of Master;) and acquired so high a reputation that a sect was formed in that country, which assumed the title of *Arnoldistæ* out of compliment to him. Arnaud distinguished himself much by his investigations in Chemistry, a science which he contributed greatly to enlarge and on which he wrote many works; and, in his Breviary of the Practice of Medicine, he describes a number of Chemical medicines, such as the *Aqua Euphrasia*, or distilled water of the *Euphrasia officinalis*, or Eyebright, the *Aqua Mirabilis*, a preparation of Cinnamon, lemon-peel, mace, and other aromatics; another *Aqua Mirabilis*, which was a solvent of the stone; a distilled oil, serviceable in Paralysis; oil of turpentine; and a water distilled from metals, which he extols highly as a remedy in Elephantiasis. He also speaks of the distillation of Ardent Spirits, which he terms *Aqua Vitæ*, as a recent discovery, utterly unknown to the ancients, and expressed a firm conviction that it was the long sought-for panacea.

Richard of England, in his chemical treatise entitled "*Correctorium*," states that Pope Inno-

cent V.^e, when labouring under an attack of Plague, was cured by Arnaud, who administered to him the Tincture of Gold. Arnaud, in his Breviary, which, in a practical point of view, contains little that is new or important, has given an ample collection of Formulæ both Chemical and Galenical, collected not only from the works of his predecessors, but from his contemporaries and acquaintance. While in Spain, he ingratiated himself so completely with James II., of Arragon, that he was employed by that Prince on a mission to Pope Clement V., at Avignon, for the purpose of adjusting some matters relating to the title of king of Jerusalem, to which James laid claim. His studies extended to Theology as well as Medicine, and he bore the character of an able disputant. He maintained a debate on several weighty topics, at Bourdeaux, in the presence of Clement, with Martin de Athera, a Dominican. He had such implicit faith in Astrology, that he confidently predicted the destruction of the world in the year 1376. When at Paris, he gave great offence to the priests by the freedom of his theological opinions, those especially which related to the immoral and scandalous lives of the monks; and the faculty of Theology at Paris condemned fifteen of his positions, and among the number

* He succeeded Gregory X., in the year 1276, and died in the same year himself, having enjoyed his pontifical dignity but a few months.

his assertion, made in the strictest conformity with the doctrines of the Bible, "that the works of mercy and of medicine were more acceptable to God than the sacrifice of the altar." To escape persecution, (especially as the inquisition had already commenced proceedings against Petrus de Apono,) he retired to the court of Frederick of Arragon, with whom he had contracted a friendship during his former residence in Spain. Here he wrote his *Treatise on the government of the Health*, and his *Commentaries on the School of Salerno*. He was the author besides of many other works, which were afterwards collected and printed in folio at Lyons, in 1520, and reprinted at Basil, in 1585. In these he complains much of the interference of the clergy in the practice of physic; an evil which continued, however, perpetually to increase, notwithstanding the repeated efforts of the Popes to check it, till after the revival of letters. His works abound in singular passages highly characteristic of the rude and licentious manners of the age; especially in those parts which treat of female complaints, where we meet with remarks made by no other writer either before or after his time. Among other works of his we find "*Expositiones visionum quæ sunt in somniis ad utilitatem medicinæ*"—"Remedia contra veneficia,"—and a treatise "*De conservanda juventute et retardanda senectute*;" which strongly bespeak the superstitious bent of his mind. The period of his death is not known with certainty,

but it is presumed to have taken place about the year 1312; for we find Pope Clement V., in the year 1313, sending circular letters in every direction, adjuring all who received them to send to him, if they chanced to possess it, a treatise on the practice of Physic which Arnaud (or Arnoldus de Villa Nova as he was called) promised to send him, but had been prevented from doing, as he supposed, by death.

Raymond Lully, with whom Arnaud contracted a friendship during his first visit to Spain, and who not unfrequently honours him with the title of master, was born, it is said, in the year 1236, and with Arnaud, and Thaddæus of Florence, who was born in that town in 1270, is the first who makes mention of spirits of wine: this Raymond regarded as an emanation of the Deity, wisely concealed from the earlier inhabitants of the earth, because men were then in their infancy, and reserved for the renovation of the decrepid old age of the world. Hence he was led, from the fact of its discovery, to argue that the end of the world was rapidly approaching. It is in the works of this writer, who died about the year 1315, that we find the term Alcohol, though evidently of Arabic origin, first applied to Spirit of Wine.

About this period also flourished Brunus, an Italian Physician and Surgeon of considerable eminence, born in Calabria, and said to have been intimate with Petrarch. He published

at Padua, in the year 1252, a collection of Surgery*, more copious than any which preceded it, but chiefly taken, as he himself acknowledges, from the Arabian writers, and especially from Albucasis; from whose works he has taken his account of the operation of lithotomy; although he declares that he took particular care that all the great operations described in his collection should be conformable to actual experience. So general, however, was the practice of merely transcribing from the Arabians, among the writers of this period, that Severinus very justly denominates all the surgical authors of the age Arabista. Brunus recommends opening the sinuses in cases of Fistula of the Anus, without which, he says, we cannot hope to effect a cure.

Scarcely was Brunus dead, when Theodoric, Bishop of Cervia, endeavoured to acquire reputation for himself at Brunus' expense by publishing his work on Surgery in his own name, with no other alteration than the addition of some idle tales which he had collected from other quarters. This work contains little deserving of notice, except a recommendation to break a badly set bone a second time, which may frequently be accomplished in cases where the callus is recent, by means of plasters and fomentations, but, in cases of longer standing, the knife must be employed, though

* *Chirurgia magna et parva*, of which a folio edition was printed at Venice, in 1490.

in what manner this is to be done, he does not think proper to explain, only observing that no rules on the subject have been left by the ancients, who rather discouraged its use. In one place he gives a minute detail of the symptoms arising from intercourse with a woman who had previously cohabited with a man labouring under Elephantiasis. These details, which are sufficiently curious in themselves, appear to be entitled to the claim of originality, as they are not to be found in the works of Brunus; nor do the Arabians, who speak of this mode of propagating the complaint, give any detail of the symptoms. He also notices the effect of mercurial friction in producing salivation, and describes the manner of preparing a variety of unguents for the purpose; laying down precise rules as to the length of time the friction should be continued, and the number of times it should be daily repeated, until the flow of Saliva commences; cautioning the patient to guard carefully against exposure to cold, and not to bathe before the fortieth day. The saliva, he says, runs from the mouth in torrents, and he instances the success of this plan of treatment in the "*Malum mortuum*" (a kind of eruptive disease, so named from the black and apparently mortified scab which attended it,) and in Psora. It is plain that these mercurial ointments have been borrowed from the Arabians, and were tried with success in the cases spoken of by the Bishop, from their analogy with other cutaneous affections in which they were

employed by Rhazes, Avicenna, and the other Arabian writers. The compilation of the Bishop, however, has so little originality or utility to boast, that it would be cruel to scrutinize too minutely into the validity of that little, or to deprive him of the shadow when he is so miserably deficient in the substance.

Nearly about the same period with the writers of whom we have just been speaking, lived William of Salicetum, who was a Professor at Verona, and died, as Lindanus informs us, in 1270, or 1280—it appears to be not exactly certain which, for the difficulty of ascertaining the precise dates at this period is very great. Lindanus, though he assigns the year 1270 for the period of William's death, says it took place in the same year in which Thaddeus of Florence died, an event which Champerius fixes in the year 1280, which would give an addition of ten years to our author's life. Notwithstanding the barbarisms that disfigure his style, in common with that of the whole of his contemporaries, and notwithstanding the freedom with which he has borrowed, according to the fashion of the age, from the works of the Arabians and others who preceded him, the productions of William possess a very considerable share of merit, and display a larger proportion of original facts and observations than was usual in his day. Indeed he appears to have been decidedly superior to all his contemporaries in talent and erudition, and it was not without reason that Guido de Cauliaco pronounced him "a powerful man," both in Medicine and Surgery. His prac-

tice seems to have been founded on the best possible basis, that of long and careful observation; and he assumed it as an axiom that medical knowledge was not to be acquired from the study of books, but from practical experience: he who would attain to excellence must, as he observes, himself witness and perform the several operations. That he followed the advice which he gives, and performed with his own hands most or all the operations of which he speaks, appears more than probable from the minute details he gives of the operation of Lithotomy, his description of which differs in many particulars from those of former writers: especially where, speaking of the operation in cases of females, he particularly notices the difficulty of making the incision, on account of the position of the Uterus between the bladder and the rectum. He says, with Albucasis, that he never saw a case of Hydrocephalus cured by an operation, nor does he imagine the complaint to be of a nature which admits of recovery: yet he mentions a case of spontaneous recovery, which he witnessed in the Hospital at Cremona, where the patient, a boy, who had been afflicted with it, lived for many years after: and experience teaches us that similar cases occasionally occur, in which the effused serum is absorbed without the aid of any artificial evacuation. He cured a girl by means of caustic applied once to the frontal and twice to the occipital bone, by which means a copious discharge was produced: the tumour was in this case most probably external.

He is the first modern who has distinctly described the *Crusta lactea**, the mode of curing which, without hazard to the patient, he clearly lays down : and he appears to have been the first who recommended mercurial lotions for the face. On the subject of tumours he makes a very apposite remark—that when they are either very deeply seated, or situated in a very fleshy part, it is difficult to determine whether they contain pus or not ; and hence, as we have no other mode of judging than by the touch, it is necessary to employ the utmost possible caution in opening them, for fear of making an incision into an aneurism by mistake for an abscess.

He treats the cure of *Sarcocoele*, or *Hernia carnosa*, more accurately than any of his predecessors ; observing that it is a complaint difficult to overcome and often attended with considerable danger, since it cannot possibly be removed without the aid of the knife. He recommends the separation of the fleshy tumour from the testicle, and advises, that if this last should appear in the least degree diseased, it should be removed at the same time ; since a perfect cure cannot be otherwise effected.

He gives many examples of his manner of treating wounds, and mentions several cures which he accomplished in cases neither common nor unattended with difficulty. When speaking of wounds in the thorax, he makes some important

* Called by the Greek writers *αγορ*, and by the Latin writers of the age succeeding the Classic, *Lactunien*.

remarks upon the nerves of the part, observing that those which proceed from the sixth and seventh pair derive their origin from the brain, and serve for the purposes of voluntary motion; while the others, arising from the Cerebellum and the spinal marrow, serve for the natural or vital functions—a circumstance which he illustrates by the symptoms of Apoplexy. The fact of his pointing out this distinction between the functions of those nerves which originate in the Cerebrum, and those which proceed from the Cerebellum and its prolongation the spinal marrow, is entitled to the more notice, from the coincidence of opinion in this respect between him and our distinguished countryman Willis, who, so many centuries after, first promulgated a rational theory of the nervous system, and pointed out the difference between the Cerebrum and the Cerebellum, as consisting in the one presiding over the vital, or involuntary functions; the other over the animal, or voluntary ones; an opinion, however, which appears yet open to some discussion.

Lanfranc, who was born at Milan, prosecuted his studies chiefly at Leyden, whence he went to Paris in the year 1295, and there, in the following year, completed his work on Medicine, nearly the whole of which is taken from Gulielmus de Saliceto, with merely a change in the plan of arrangement; for, although he refers to Theodoric, he has borrowed far more freely from Gulielmus, to whom he has not made the slightest acknowledgment, nor has even

so much as once mentioned his name. His opinions upon some points are somewhat singular; as, for example, on the subject of lithotomy, which he strongly condemns, because he is acquainted, as he tells us, with a method of preventing the formation of calculus. He also condemns cutting and the use of caustics in the cure of Hernia; and is decidedly hostile to the use of the Trephine, declaring that he had cured many without it; and, to impress us more strongly with a conviction of the danger attending the operation of trepanning, he appeals to the practice of Anselmus de Janua*. He gives the history of a man who, after receiving a wound in the head, was attacked with convulsions, notwithstanding which he recovered: but, in those cases in which fever accompanied the convulsions, produced by an injury of the head or nerves, he declares he never experienced a single instance of recovery.

We may form some opinion of the low state of Chemical knowledge among medical practitioners at this period, from the fact of Gordonius, (or Bernardus de Gordonio, as he calls himself, from Gordon in Rouvergne, the place of his birth,) when speaking of the Oil of Tartar, which he

* Of this practitioner we have no authentic records, nor has any work bearing his name reached to our days. Astruc is of opinion that he belonged to the faculty of Medicine at Montpellier, and it is evident that he was held in some repute, from the manner in which he is spoken of by Landrac and by Guido de Cauliaco, the latter of whom particularly recommended his practice in certain cases.

describes, and directs its use externally, saying that it was only known to the Alchymists, and observing that chemical remedies, though useful in many cases, are highly injurious in others, and cause the death of numbers. Gordonius was a Professor of Medicine, at Montpellier, in the year 1285, where he continued to teach for above twenty, or, according to Renshin, who fixes his death in 1305, about thirty-three years, and was the author of several medical works, which were collected together and published at Ferrara, in 1487. Among the rest he left a huge volume entitled, according to the affected practice of the age, the *Lily of Medicine*, which contains little worth notice except the mode of preparing some Troches, which yet bear his name, and a Powder against Convulsions, which at that period enjoyed high reputation in Epileptic cases, among the inhabitants of that part of France, and is even now occasionally employed, though not by any regular practitioner.

About the same period with Gordonius, flourished Mondino or Mundinus, a native of Milan, where he was born about the year 1276, and held the professorship of Medicine at Bologna, in the year 1316. Mundinus, who enjoyed a great reputation for professional skill throughout Italy, was chiefly remarkable for his efforts to improve the languishing science of Anatomy, by some new, though rude attempts at dissection. About the year 1315, he composed a regular body of Ana-

tomy*, interspersed with a variety of original observations and discoveries, which, being a practical anatomist, he was enabled to make, himself; these discoveries related chiefly to the uterus. He speaks of seven cells being found in this organ, the mouth of which he describes as resembling that of a young whelp, or rather a grown tench (*os tinca*), and notices the Hymen, which he calls "*velamen subtile quod in violatis rumpitur.*" The neck of the Uterus was, according to him, a palm in length, broad and dilatable, with *rugæ* resembling horse-leeches. He mistook the *vulva* for the extremity of the uterus, and notices two membranes near the orifice of the urethra, by which he probably means the *nymphæ*. He says, that the ducts of the Ureters pass obliquely into the bladder, in order to prevent the urine from flowing back into the kidneys; and he calls the valves belonging to the vessels of the heart, *ostiola*, or little doors

* "*Anatomia cœnium humani corporis interiorum membrorum.*" first published in folio at Pavia, in 1478, and frequently reprinted afterwards, with notes and commentaries. It is a methodical treatise, very copious on the subject of the viscera, but meagre and superficial in every thing relating to the nerves and vascular system. The attachment which the author manifests for the opinions of Galen and Avicenna, the medical oracles of his day, has led him into several errors, and the work is otherwise characterized by the prevailing rudeness and inaccuracy of the period. Yet it was valuable in the infancy of the science, and rose to such celebrity, that the use of any other as a text book was peremptorily prohibited by the statutes of the university of Padua, and some of the other medical schools of Italy. This reputation it maintained steadily for a period of nearly two centuries. Its author died at Bologna, about the year 1325, or 1326.

—yet, though the very term he employs to designate these valves seems almost to imply some acquaintance with their uses, and might have suggested some suspicion of the manner in which the circulation of the blood is carried on, Mundinus, in common with all who preceded, as well as those who followed him, before the days of Harvey, stopped short on the very threshold of discovery; and the honour of revealing the important secret to the eyes of an admiring world was reserved for our immortal countryman, and for the brighter illumination of the seventeenth century. Although in general meagre and unsatisfactory in his account of the venous and arterial systems, he notices one fact worthy observation, that the vessels which go to the supply of the tongue and of the penis are larger, in proportion to the size of the parts which they supply, than those of any other part of the body.

Nearly at the same period with Mundinus, Robert, king of Naples, was a distinguished patron of medical science, and retained at his court two physicians of the most eminent talents, Francis of Piedmont, and Matthew Sylvaticus; the last of whom undertook the continuation of the supplement to the works of Mesue, which Peter de Apono had commenced, but is, indeed, nothing more than a compilation of what has been written on the subject of systematic practice, by the Arabian authors. Besides this completion of the unfinished labours of Apono, Sylvaticus wrote a large volume about the year 1317,

which he called "*Pandectæ Medicinæ*," a kind of Medical Vocabulary, to facilitate the understanding of the translations of the Greek and Arabic writers. This work, however, from which he acquired the appellation of Pandectarius, appears to have been, notwithstanding its formidable bulk, very defective in the manner of its execution; and has fallen into merited oblivion. It must, however, be said to his credit, that he contributed more largely to the improvement of Botany, and to the accurate determination of the properties and uses of plants, than any other writer of that dark period. Reinesius observes that he speaks above sixty times in the course of his work of Demosthenes Herophilæus, the author of three books on the subject of the eyes, so highly commended by Galen: from which it is manifest that that work was extant in those days, although no part of it has reached to our times, except the scanty fragments preserved in his writings.

Medical science had hitherto made little if any progress in England, nor do we meet, till near the close of the thirteenth century, a single medical writer, (with the exception perhaps of Bacon, who can hardly be regarded as a professional author,) that signalized himself in the annals of medicine in the British islands, before the time of Gilbertus Anglicanus, or Gilbert Legleus, as he is called by Bale. The reason of this backwardness of medical science among the English may be readily comprehended from the circumstance of there being no encouragement held

out for proficiency in this department of knowledge, at any of our Colleges or Universities, and the practice of medicine being wholly in the hands of the Monks, who were far from being distinguished at this period by any superiority of literary or scientific attainments. Gilbert, the time of whose birth* and the place of whose nativity are alike involved in the deepest uncertainty, is the first practical writer on the subject of medicine, of whom the British islands can legitimately boast. Gilbert maintained a character both for erudition and talent, being deeply versed, for the age, in Philosophy and Physic, and eminently successful in practice. Leland speaks highly of his skill and knowledge, and particularly commends the rules he prescribes for the preservation of health, and the perspicuity with which he explains the virtues of herbs, so as to

* Bale places him in the reign of John, about the year 1210, and says, he was physician to Walter Hubert, Archbishop of Canterbury, who succeeded Reginald Fitzpoecelin in 1191, and died in 1201. But Leland makes him much later, without, however, assigning any reason for doing so, while Freind concludes, from the internal evidence contained in his "*Compendium of Physic*," the work by which he is best known, that he must have lived much later than the commencement of the thirteenth century, and probably, as late as the beginning of the reign of Edward I. who succeeded Henry III. in 1272, and died in 1307 for Gilbert, in the work referred to, frequently quotes Averrhoes, who did not die before the close of the twelfth century; and whose works, as we learn from Bacon, were not translated from the Arabic, before the middle, at least, of the thirteenth century. Besides he speaks of a treatise "*de speculo*," which is most probably the same which Bacon wrote, and transcribes many passages on the subject of Elephantiasis from the works of Theophrastus, who did not himself flourish before the middle of the thirteenth century.

make himself intelligible to the meanest understanding. Yet, notwithstanding this high eulogium, which was, after all, perhaps as well merited by Gilbert as by any of his contemporaries in other more favoured countries, his writings partake largely in the universal defect of the age, being almost wholly compiled from the works of the Arabians, and exhibiting occasionally entire chapters taken, without an attempt at alteration, from the writings of Rhazes; a striking instance of which occurs in his Chapter upon Gout. He also selects, but with acknowledgment, some of the best observations contained in the productions of Alexander: evincing considerable tact and judgment in the selection. Thrice, or oftener, likewise, he mentions a writer noticed by no other author, except Thomas de Garbo, of Florence, his pupil—namely Cophon, the author of a book on Purgatives, and what were then called Opiales, which he says were more efficacious than purgatives in all cases where there was any effusion of water between the skin and the flesh. Cophon gives one prescription which deserves to be recorded for its singularity; it is to feed a pullet for eight days on white Hellebore, and then kill it: the soup made of the flesh acts, he informs us, as a gentle purgative. This prescription is admirably suited for those patients who have an insuperable aversion to undisguised physic, and require to be bribed, like children with sugar-plums, into taking what the state of their health renders indispensable.

Gilbert relates the case of a boy of a melancholic temperament, who, after a long attack of indigestion, was seized with a tumefaction of the abdomen, accompanied by Leucophlegmatia. Sometimes tertian fever came on, attended with yellow urine, and followed by diarrhoea. He had employed refrigerants, and been purged with Myrobalans; after which, he went into sulphureous baths, by which he was completely cured. Gilbert gives no farther explanation of this case, nor does he tell us what baths the patient used, or whether he drank the waters at the same time that he employed them externally. It seems hardly probable, that the mere use of refrigerants, accompanied by such gentle purgatives as he speaks of, and followed only by the external use of sulphureous water, could have made the impression he speaks of, upon a complaint like that he describes, and which, most probably, arose from a diseased state of the mesenteric glands. If the complaint gave way, as he says, under such inert practice, either it must have been of a milder character than his description would lead us to suppose, or the patient must have been more indebted to a good constitution and the sanatory efforts of nature than to the skill of the practitioner. Gilbert, when treating of a scrophulous tumour in the glands, observes, that this complaint is otherwise called the King's evil, because of its being cured by the Royal touch; a proof of the great antiquity of this practice, which, not improbably,

prevailed in England without interruption from the time of Edward the Confessor, who mounted the English throne in the year 1041. In his reign, history informs us, it was first introduced, from the supposed sanctity of that monarch.

Gilbert is said to have been the first English physician who had the hardihood to expose the absurd practices of the monks, who at that time chiefly engrossed the practice of medicine; and he contrasted their practice with that recommended by the ancients. Of the time of his death we have no account. His principal works will be found enumerated in the note*.

Not far distant from the time of Gilbert, lived John of Gaddesden, another of our countrymen, and author of the celebrated "*Rosa Anglica*." Respecting this writer, the history of the age furnishes us with but few particulars; and even that laborious and indefatigable antiquary, Anthony Wood, although a member of Merton, the same College in which John was educated, gives us little more information respecting him than that he took the degree of Doctor of Medicine, and flourished about the year 1320. We are enabled, however, to collect more authentic as well as accurate information respecting the æra at which

* Gilbert's principal work was his "*Compendium Medicinæ, tam Morborum universalium quam particularium*," which was corrected by Michael Capella, and printed at Lyons in 1510, and in 1608 a new edition appeared at Geneva, under the title of "*Laurea Anglicana, seu Compendium totius Medicinæ*." He also wrote "*De Viribus Aquarum*," "*De re Medica*," "*Thesaurus Panacearum*," and "*De Turba Valetudinis*."

this writer flourished, and the year in which he composed his "*Rosa Anglica*," from the internal evidence of the work itself, than from any facts to be found in Wood, who has, doubtless, given us all the details which he could glean from the archives of his college, or from the floating traditions of his day. We are informed by the work itself, in the phraseology of the age, that it was composed in the seventh year of his Lectures; and it appears probable that these Lectures were read in his own College, where a Society appears to have been founded for the express purpose of promoting medical knowledge, and one which held out ampler encouragement for prosecuting the study of Medicine than all the other Colleges of Oxford taken collectively. In addition to which, the cases which he introduces of a Scholar, and a noble Bachelor, whom he attended with success, appear to fix the date of the work somewhere between the years 1305 and 1317; since he there makes mention of Gordonius, and is himself, as Leland testifies, spoken of by Matthew Sylvaticus in his Pandects: now Gordonius died, according to some, in 1305, and, according to others, in 1318—while Sylvaticus completed his immense volume of Pandects, as we have already seen, in 1317.

The "*Rosa Anglica*" embraces the whole Practice of Medicine, chiefly collected from the Arabians, and from such authors as wrote in Latin shortly before his time, to which John has added much derived from his own practical knowledge. Of his professional skill there seems to be

little reason to doubt, especially as both Contringius and Leland are agreed upon that point, and the latter, in particular, pronounces him the most ingenious man of his age, and speaks of this very work as distinguished for the depth of its erudition. Guido de Cauliacus indeed expresses a widely different opinion, and says in his preface—
 “Ultimo insurrexit una *Fatua Rosa Anglicana*, quæ mihi missa fuit, et visa credidi in ea invenire odorem suavitatis, sed inveni fabulas Hispani, Gilberti, et Theodorici *.” The latter part of Guido’s condemnation appears to have little foundation in fact; and, rapid as he may have deemed our English Rose, it will not, perhaps, be found, upon a closer examination, so utterly devoid of odour, so completely destitute of merit, as he would endeavour to make us believe: for, although its author can claim little merit beyond that of an empiric, he was indisputably one of the very best of his class, and conducted his practice with singular skill. Indeed, it is clear from his works, that he was well read in the weaknesses of human nature, understood fully with what caution the trade of deception required to be carried on, and was perfectly conversant in the best methods of turning the credulity of our nature to his own account. His study appears to have been to administer to the luxurious appetites and refined tastes of his patients, so as to play them into

* Last of all arose the *scantless* Rose of England, in which, on its being sent to me, I hoped to find the odour of sweetness, but instead of that I only encountered the fictions of Hispanus, of Gilbert, and of Theodoric.—*Guid. de Caul.* in *Pref.*

health, rather than disgust their palates with nauseous potions, or hurt their delicacy by the operation of rough medicines. He tempted the wealthy and the delicate by luscious viands; and even pampered the tastes of the ladies by devising new perfumes, divine cosmetics to heighten their complexions*, and exquisite oils to promote the growth and improve the beauty of their tresses, always selecting for their use the most agreeable as well as the most costly medicines. And, if he recommends any thing as being particularly valuable, he takes care to direct twice as much for the rich man as for the poor. His etymological reveries, hardly admitting of being rendered intelligible in an English form, will be best passed over†. But he is not content with displaying his learning in the refinement of his prescriptions and the abstruseness of his etymologies; he aims also at the reputation of a Poet, introducing rhymes into almost every page, and leaving us at a loss to decide whether he was greatest as Physician, as Philologist, or Poet.

But, however absurd such things may appear in our day, when the march of intellect has made such giant strides, and the sun of erudition shines with meridian splendour alike upon the lofty and the low: in the age in which John flourished, they were justly accounted proofs of superior

* De modo faciendi linc Virginis, 134

† Such as *Peritonæum, quia juxta tonantem* — *Hernia, quasi rumpens enia*—viz. *intestina*, and the like, which, like *puns*, set translation at defiance.

genius and erudition, and their author was regarded with more fear and veneration, even by the learned among his contemporaries, than a comet would obtain from the most unenlightened of our own. Hence we cannot be surprised to learn that John's reputation ranked so high, that the King * placed his son, when labouring under Small Pox, under his care, sending for John to Court for this express purpose, or that he conducted his Princely patient, *suto et jucunde*, safely and agreeably, although perhaps not altogether as expeditiously as might be, through this malady. For, to prove the superiority of his skill in disorders arising from inflammation, he had recourse to the whole assemblage of his visionary theories upon this occasion; and, after going through all the necessary preliminaries, with the most imposing gravity of countenance, he directed, as he informs us himself †, his patient to be wrapped up in scarlet cloth, and the bed and entire furniture of the room to be clothed in a similar livery: by which means he boasts of having so effectually cured the Prince, that not a single pit remained to testify his having undergone this loathsome disease, or detract from the manly beauty of his visage.

But John, like Alexander the Great, was not content with victory, so long as fresh conquests

* Edward II. ? It could hardly have been Edward I., as Friend seems to conjecture.

† "Capitur scarletum, et involvatur variolosus totaliter, sicut ego feci de filio nobilissimi Regis Anglie—et fecit omnia circa lectum esse rubra—et est bona cura."

remained to be accomplished—neither the field of medicine, of philology, nor of poetry, was sufficient for his comprehensive genius; Surgery and Physionomy were yet to be added to his attainments, and in these he boasts of a skill and success in no respect inferior to that which he had already displayed in the other branches of knowledge.

He deals largely also in Secrets, some of which he emphatically denominates Secrets of Secrets, by means of which he was enabled to perform miracles*. These he values so highly that he forbids their being divulged to profane ears; in which prohibition he sometimes includes the ladies, especially when he speaks of strong waters and spirit of wine. He descants largely and enthusiastically on the emolument he derived from the sale of his medicines, some of which brought so high a price, that he says he was unable to reckon † up the amount of the gifts and money he received. The Surgeon Barbers, as he acquaints us, gave a large price for a prescription into the composition of which Tree Frogs entered ‡. Yet, although he thus proves himself to have been fully alive to the pecuniary value of his nostrums—with a liberality of which we find few examples even at the present day, and a generosity apparently at variance with the character which we may have been led to form of

* De quo possum dicere multa miracula.

† Hoc est mentum, pro quo habui pecunias, et tot alia quæ nescio quot et quanta.

‡ Pro quo habui bonam pecuniam à Barbitousoribus.

him, he communicates these important secrets freely and gratuitously to his readers. There is hardly a complaint for which he is unprovided with a remedy, and he accompanies the account of each with a due proportion of cautions respecting its application. Armed with such a battery of prescriptions, John boldly enters the lists with disease, and, where the preponderance in point of resources is so decidedly on his side, it would be next to a miracle if he did not sometimes come off victorious. He cured, he tells us, twenty patients afflicted with dropsy, by the exhibition of Spikenard, "a remedy which should not be given without first receiving a fee*." He has left nothing unattempted which has the remotest connection with the science of Medicine; and, the greater the difficulty, or the more hazardous the danger, the more boldly and actively does he make the assault. Does any one suffer under a paroxysm of Calculus? John is ready with his lithontriptics for its solution. Does Gout dare to invade any one? He has unguents and cataplasms to expel the enemy. He conquered Epileptic attacks with his Anodyne necklaces, and cured Paralysis of the tongue with Aqua Vitæ. Nothing comes amiss to his hands, and nothing seems to fail under his guidance, from the extraction of a rotten tooth to the amputation of a gangrened limb—from the composition of a cosmetic to the subjugation of a fever. Now, amidst such a mass of pretension and such a farrago of

* *Nec debet dari nisi accepto salario.*

remedies, it would be strange if we could not find something worthy of being preserved—some latent jewel to redeem this mass of egotism and absurdity—some fact worthy of rescuing the name of Johannes de Gaddesden from oblivion—some lingering *attar*, to lend a partial fragrance to this laboriously selected Rose of England.—We accordingly find some facts noticed in this work which had escaped the researches of abler writers, and some discoveries announced which have been supposed to be of more modern date—thus, in the twentieth chapter, long before the time of Citois, we find the termination of the Colica Pictorum, or Devonshire Colic, in paralysis of the limbs, noticed*. He likewise maintains, contrary to the opinion so long entertained among medical men, (but which we have already seen, from the testimony of the Abbé Grosier, had been long known to the Chinese, and which modern experience has proved to be a fact,) that a repetition of the attack of Small Pox may sometimes take place. On the subject of pregnancy he is more than eloquent—his wit bordering, in fact, upon gross indelicacy. He recommends the use of toasted Rhubarb to ladies in this condition. He has much on the subject of midwifery, and, though he does not clearly admit having himself practised that art, it is hardly to be sup-

* Paulus Aegineta, in his eighteenth Chapter "*De resolutione ex eodem morbo abortu*," as well as Avicenna and some other Arabian writers, had noticed this termination long before the time of John, who probably borrowed the information from them.

posed that so lucrative a branch of the profession could have escaped so universal a genius. He appears, at least, to have studied with diligence all those methods of promoting conception which had been spoken of by writers, and there can be little doubt that multitudes of the fair sex flocked to him to learn his important secrets: but for these it will be necessary for the curious reader to refer to the original rose-bush; since, however odoriferous the ladies of the fourteenth century might have deemed this bud of the Gaddesden rose, its sweets would hardly pass current among the more refined and fastidious beaux of the nineteenth!

Although nothing that he says respecting the causes and symptoms of diseases, (not even where he speaks of Consumption—that complaint which is considered as so essentially connected with the variability of our climate,) can boast the merit of originality, he has much on the subject of remedies, which is not to be found in the works of any other writer; and there are few works better calculated to give us an insight into the nature of the prescriptions in general use both among physicians and among the vulgar of his day—the preparations of the empirics, or the charms of the superstitious, than the "*Rosa Anglicana*" of John of Gaddesden.

This work likewise furnishes much curious information respecting the mode of living among our ancestors in those days, and the description of food which they employed, as well as the manner of its preparation: for our author did not disdain to embrace even the humble department of cook-

ery in his universal grasp ; and he makes several judicious observations on the mode of dressing meat.

John of Gaddesden appears to have been the first English physician who was employed at court ; for, before his time, the Royal Physicians, as well as the Druggists, were all foreigners. Even as late as the year 1340 we find, upon referring to the accounts of the household, in the thirty-second year of the reign of Edward the third, that Peter of Montpellier was Apothecary to the Royal household.

Such was the reputation which John of Gaddesden's work enjoyed, that he was extolled by Chaucer, the Poet, as the most illustrious among the writers on medicine : and certainly, the *Rose* of our countryman, notwithstanding the sneers of Guido, is as deserving of praise as the *Lily* of Gordonius, which was eulogized by his contemporaries as a production little short of divine. In fact, as we have already seen from the hasty analysis just given, the work of our countryman is neither destitute of talent nor originality, and, whatever its defects may be, they were those of the age rather than of the author, while he can justly claim all the merits as his own.

John frequently refers to a writer of the name of Gerard, and in one place in particular cites his observations on Dysentery, taken from the fourth book of his *Viaticum* : this can be no other than the work entitled "*Glossa Viatici Isaaci*," of which there is a MS. copy extant in the Harleian Collection. It was written by

Gerard, of Carmona*, a town of Andalusia, who flourished about the middle of the thirteenth century; and who having, from long intercourse with the Saracens, made himself perfect master of Arabic, translated several medical works from that language into Latin.

Bartholomew Glanville, the author of a work entitled "*De Proprietatibus Rerum*," and an English Physician, has a place assigned to him by Pitt, about this time, and is said by him to have written a book on the Practice of medicine. It is probable, however, that Pitt has confounded two individuals of the same name, for neither Leland nor Bayle after him mentions Glanville as the writer of any work of this description: nor do they even allude to his having ever applied himself to the study of Medicine. He treats, it is true, of a variety of complaints in his seventh book, but this he copied principally from the writings of Constantine. Bartholomew, who wrote a *Breviary of Practice*, as the work was called, speaks of Glanville in such a manner as to make it evident that the same person could not be the author of both works. Bartholomew's *Breviary* is a most voluminous work, spun out into fifteen long books. A manuscript copy exists in the Harleyan Library. We meet in it the same history of the propagation of Elephantiasis which has been already noticed when speaking of the writings of Gilbert; and both accounts are almost word

* About thirty miles N. E. of the City of Seville.

for word the same; while nothing of the kind is to be found in Glanville. As for the rest of the work, the writer ingenuously admits that it has no claim whatever to originality, but is wholly compiled from such materials as he could find bearing upon his subject in the writings of the philosophers and the physicians. This, however, was the general practice of the age, and tended not a little to retard the progress of knowledge.

Aided by the labours of the different writers of whom we have just spoken, as well as by a large share of practical experience, acquired through a long succession of years, Guido de Cauliaco, or Guy de Chauliac, as he was otherwise called, reduced the art of Surgery to a regular system, about the year 1363, when he had himself attained to a very advanced age: and although, according to his own admission, he made but few additions to the stock of knowledge previously acquired, he is deservedly accounted one of the revivers of the languishing art of surgery, and has been compared to Hippocrates by Fallopius, who must be admitted to be a competent judge of surgical and anatomical merit.

Guido* had been a Professor at Montpellier,

* Gui de Cauliac, Guy de Chauliac, or Guido de Cauliaco, was born at a small town in the Gavandon, on the frontiers of Auvergne, in the early part of the fourteenth century, and studied medicine at Montpellier, under Raymond de Moneres, where he made such rapid progress, that he was at a very early age appointed to teach Surgery there.

and practised for many years at Leyden, after which he settled at Avignon, where he held the post of Physician to Pope Clement VI., and his successors. He only acknowledges having seen the sixth book of Paulus, yet has taken ample care to profit by its contents. He has also availed himself of the writings of others of his predecessors, especially among the Arabians, and, among these, of the writings of Albucasis in particular, which he has made use of with considerable judgment. He makes no mention of Celsus, whose works seem to have been but little known at this period: but, among the books he speaks of having consulted for the composition of his work, he mentions a translation of some of the books of Galen, made a short time before by order of Robert, king of Sicily, by Nicolaus de Reggio, in Calabria, whom he represents as one of the first Greek and Latin Scholars of the age. In the enumeration of authors whom he has consulted, Guido does not confine himself to giving a barren catalogue of

His "*Magna Chirurgia*," which he completed in Latin, in 1363, has been translated into most of the European languages. It was first printed at Venice, in folio, in 1490, and an English translation, of which a copy yet exists in the British Museum, appeared in 1541, also in folio.

Guido was the first to point out the importance of making incisions over the eye-brows, in the direction of the muscular fibres, and not transversely. He also describes the lower end of the humerus and joint of the elbow more accurately than his predecessors. He revived the use of the trephine, and invented several instruments, of which he gives figures, including them a pair of forceps for taking up wounded arteries.

names and works, but stamps it with an additional value and interest by annexing to each a critical examination of its respective merits; and, although his style is deeply tinged with the barbarisms of his age, his opinion on the subjects of his criticism is given with judgment, fairness, and impartiality. Besides this *catalogue raisonné* of authors, he has left us a concise history of the state of Surgery in his day; from which we learn that the Surgeons of that period were divided into five sects, of which the *first*, following the lead of Roger*, Roland, and the four Masters, applied cataplasms indiscriminately to every description of ulcer and wound: the *second*, with Brunus and Theodoric, in similar cases employed wine only; the *third*, with William of Salicetus, and Lanfranc, adopting a kind of middle course between these two, treated wounds with emollient ointments and plaisters: while the *fourth*, forming the sect of Germans, who were mostly military surgeons, promiscuously employed oils, wool, potions, and charms: and a *fifth*, consisting of ignorant practitioners

* Little can be collected from any source respecting these writers, beyond what is to be found in Freund's History, whence we learn that Roger was a native of Parma, or, according to some, of Salerno, and wrote a work on Surgery, chiefly borrowed from Albucasis, though without acknowledgment to him, or, indeed, any other writer. After him came Jamernus, the author, as Gundo acquaints us, of a stupid book on Surgery, and to him succeeded Roland, whose Surgical works are pirated, even more largely than Jamernus's, from the compilation of Roger of Parma. Of Brunus and Theodoric some account will be found in a former part of this chapter.

and silly women, had recourse upon all occasions to the saints, praised each other's writings perpetually, and followed each other in one undeviating track, like Cranes.

Guido relates the case of a man who recovered, after the removal of a considerable portion of the cerebrum, or anterior part of the brain; a circumstance the more worthy of remark, on account of its being perhaps the first case of the kind upon record in the annals of Surgery: for, although Galen and others speak of injuries of the brain, they are silent with respect to the removal of any portion. Guido, however, considers that the case he relates would have been incurable, had the whole of the contents of the cavity been removed, although Theodoric acquaints us that a case of this description was successfully treated by his master, Hugo de Luca. This, however, may be one of the fables alluded to by Guido. He gives a minute account of the manner of treating both inguinal and intestinal Hernia, and details the several methods of cure, by cutting, by cautery, and by caustics; giving a decided preference to the last method, which he describes fully, and mentions having seen it performed upwards of thirty times by his master, Peter de Bonanto. In this, as well as other parts of his works, will be found a multitude of things, which have been claimed by the moderns as more recent discoveries.

The earliest account we have of the Cæsarean operation is in Guido's "*Chirurgia*," but he only speaks of it as resorted to after the death of the

mother, as was practised, in the case of Julius Cæsar*, who was, as he says, brought into the world in this manner, from which circumstance the operation derives its name; though Pliny, on the contrary, acquaints us that the name of Cæsar was derived from the circumstance of having been ushered into the world "*cæso matris utero*" by this operation, although evidence of the fact is wanting: it is not improbable, however, from the prevalence of the opinion, that the operation had been performed before his time, although unnoticed by Hippocrates, Paulus, Celsus, or Albucasis, all of whom treat largely on the mode of assisting in cases of difficult parturition.

On the subject of amputation, Guido agrees with Avicenna and Albucasis, that it is better to perform this operation where any of the extremities have been affected with gangrene, than to sacrifice the life of the patient by omitting it. When the gangrene is near a joint, he advises the removal of the articulation. In other cases, he recommends the application of a tight ligature, both on the edge of the healthy and on the gangrenous part, cutting down to the bone between these two ligatures, and then sawing through the bone with a retractor interposed. Sometimes,

* "*Si autem contingeret mulierem ipsam esse mortuam, et inspicaveris quod fœtus esset vivus, quia vœtat lex regna mulierem prægnantem humari quousque fœtus vixerit, tenendo molienti os et matricem apertam, ut voluit mulieres, aperitur mulier secundum longitudinem cum rasorio in latere sinistro, quia pars illa est magis libera quam dextra, propter hepar, et digitis interpositis extrahant fœtum. Ita enim extractus fuit Julius Cæsar, ut in gestis legitur Romanorum. — Chirurgia Guidonis Chauliaci. Cap. de extractione fœtus.*"

however, he enveloped the mortified limb in bandages, and left it to drop off spontaneously. He was in the habit of employing, like his predecessors, hot irons, boiling oils, and astringent powders, to check hæmorrhage; and disapproves of the practice of giving narcotics to allay pain, adopted by Theodoric and others.

Guido gives us an interesting account of the plague, which depopulated the whole world in a most unprecedented manner, in the year 1358. This dreadful visitation commenced in India, and, spreading over the whole face of the globe, carried off a fourth part of the inhabitants of the earth. It was most destructive in India, where it continued its ravages for three years. At Avignon it only lasted for three months. It exhibited two different forms of attack, resembling two distinct species of the disease; of which, that which prevailed during the first three months commenced with a violent fever and hæmoptoe*, resembling what Fracastorius describes as having taken place in his time†. This form of the complaint was so malignant, that all who were attacked fell victims to it, without exception, within three days. The next form which it assumed was that of a continued fever, accompanied with Carbuncles and Abscesses, chiefly in the groin and under the axillæ. This, at the beginning, rivalled the former in malignity, but in its decline it differed

* Spitting of Blood.

† Towards the close of the fifteenth century.

from it, by not proving fatal in general before the fifth day. Guido himself, who resided at Avignon during the prevalence of this pestilence, nearly fell a victim to it towards the close of its ravages, having been seriously ill for six weeks, and only saved by the suppuration of a Bubo.

Contemporary with Guy de Chauliac, we find an English Surgeon of considerable reputation, whom we ought not to pass over without some notice. This was John Arderne, of the place or time of whose nativity we have no authentic records, although it is probable that he was born about the year 1319 or 1320, since we find him residing in full practice as a surgeon in the town of Newark, at the time of the plague visiting that place, in the year 1349. Such was his success in practice upon this melancholy occasion, that his fame spread rapidly to London, whither he in consequence was induced to remove in the year 1370. He has left a bulky volume of medicine and surgery, together with a number of MSS.; which have never been printed. Arderne may be regarded as the first reviver of surgery in England; and the numerous cases which he has left upon record in his work prove him to have been a man of great skill and extensive practice. He writes with an air of great simplicity; and, although he blends a considerable proportion of quackery and superstition with his accounts, was deservedly regarded as one of the best, and, what is of still more importance, one of the most upright, surgeons of his day. His productions contain many valuable observations,

expressed with a clearness and precision which render it impossible for the reader to fail in benefiting by them. He gives an ample choice of pharmaceutical preparations, many of which were inventions of his own, and some of which retained their place in the Pharmacopœia as late as the period at which Freind wrote his History of Medicine. He invented a syringe for giving injections, upon which he prided himself not a little; and, in a copious treatise which he wrote on the manner of using it, recommends salt as the best material for injections. He explains at length the utility of such injections, not only in the cure, but also in the prevention of disease, and, from what he says, we are led to conclude that the practice of giving injections, or *lavements*, as the French not inappropriately term them, was by no means common, or well understood. He gives abundance of cautions on the subject, and says, that the operator should neither administer them rashly or negligently; it being, he adds, the province of a perfect master of his profession to exhibit them, by which, he continues, "*centies pecuniam et famam in locis maxime distantibus acquisivi*"—I have a hundred times obtained both wealth and reputation in places the most widely apart. The operation, according to him, is one which requires considerable dexterity, especially in cases of colic and intestinal obstruction, insomuch that he frequently succeeded in giving relief to patients in London, after the Lombards, who appear to have dabbled in this department of medicine, as

well as in usury, had tried their method in vain. He recommends the use of clysters twice or thrice every year, and remarks that it is impossible for any one to form an estimate of the benefit arising from the adoption of this practice without actual experience.

The same work contains his treatise on *Fistula in Ano*, which is the only part of his writings that has been published, having been translated in the year 1588 by John Read. Ardern appears to have been very successful in this complaint, in the treatment of which he introduced many improvements. He describes both the methods of operating, by ligature and by incision, as had been done before, at full length, both by Celsus and by Paulus. He, however, describes some new instruments, and gives new names to old ones. He appears to have been employed in this complaint by many of the most distinguished persons, and to have been singularly successful in their cure. He always took the precaution to make a bargain with his patients before he entered upon the case, and advises physicians to stipulate for as much as they can get, and to obtain security for the payment of the sum as soon as the cure is complete: nor does he forget the same precaution in other cases. This custom of bargaining beforehand for their fees continued long in use among the practitioners of medicine, and prevailed in France as late as the commencement of the eighteenth century. He gives many formulæ of preparations for mitigating that ardour in passing the water, which

has its quality denoted by the French term, *chaude*, and sometimes is occasioned, as he says, by the presence of stone in the bladder. He speaks repeatedly also of abscesses, and schirrhous tumours on the Penis, which appear, however, to have been unconnected with any syphilitic taint. He states the fact of caustics having been occasionally made with orpiment and sublimed arsenic; the injurious effects of which he proves by two cases related by way of caution against their use.—Of the period of his death we have no account.

Valescus de Taranta, or Balescou de Tharera, a native of Portugal, who was first Physician to Charles VI. of France, and practised medicine for six and thirty years at Montpellier, was one of the few writers of the age, who, in place of servilely copying from the works of his predecessors, dared to draw from the ample stores of his own experience. Although almost perfectly ignorant of Greek, he was an excellent Latin Scholar, and about the year 1418 wrote a book entitled "*Philonium*," containing many observations both on Medicine and Surgery which merit attention. Among others it gives the case of a man who lost his life in consequence of the excision of the Uvula: and another, in which an Intermittent Fever returned with the utmost regularity every thirtieth day, for thirty successive years. Valescus justly expresses his astonishment at the practice which prevailed among the ancients of exhibiting warm medicines, such as Hyssop and Origanum, in

attacks of Pleurisy, and cannot understand upon what principle they could have been induced to adopt it; he very properly observes that the use of refrigerants, which had been more lately introduced into practice, was much more rational: and indeed he appears to have followed the suggestions of his own judgment, and deviated both boldly and successfully from the beaten track, in a number of difficult cases; a practice by no means common in those days, when practitioners did not dare to think for themselves, or act in contradiction to established precedent. Valescus makes frequent mention of both Roger's and Roland's system of practice in diseases.

Balescou was the first perhaps who proposed the extirpation of Cancer by means of a preparation into the composition of which Arsenic entered; cautioning practitioners, however, with respect to its use, as it was by no means free from danger; of which he gave an instance, in the case of a man who died suddenly after having had his head anointed with an arsenical preparation for Tinea. Arsenic, it may be remembered, was the active ingredient in the celebrated Cancer remedy, introduced some years since by a person of the name of Plunket. As Balescou did not begin to write before the year 1418, when he had been, as he tells us himself, thirty-six years in practice, and as we can hardly suppose he commenced practice much before his twenty-first year, we may, without much fear of error, fix the date of his birth about the year 1361. His earliest work, "*De Phylonio*," was

first printed at Venice, in 1490, and again in folio, at Lyons, in 1521, with a short treatise, "*Tractatus Chirurgiae*," subjoined. He also wrote a work entitled "*De Morbis Curandis*," which was edited in quarto, at Lyons, by Guido Desiderius, and again at Franckfort, in 1590. Balescou appears to have been well acquainted with the doctrines of Galen and the Arabians.

Such was the state of medicine, as it regards practice, at the close of the fourteenth and commencement of the fifteenth centuries. In other departments of the profession, we find some little addition made to the stock of human knowledge. The properties and composition of the various mineral waters throughout the world began to attract a considerable portion of medical attention; and the physicians of this period have handed down to us a number of observations upon their nature and uses. Among the writers of this class Michael Savonarola stands pre-eminent; and, in his additions to what J. de Dondis and Ugolino de Monte had written upon the subject, he gave an account of all the mineral springs at that time known in Italy. He was a native of Padua, and descended from an ancient and honourable family. He was grandfather of the celebrated Brother Hieronymus; had been physician to three Marquises of Ferrara, and a knight of Jerusalem. He enjoyed a high reputation for skill and experience, and wrote many books, especially one of considerable size, on Fevers. He commenced his work on Mineral waters, as appears from the Dedication, between

the years 1440 and 1450, although we can collect from the work itself that he made some additions to it afterwards about the year 1460.

Sicily also produced, about the beginning of the fifteenth century, a physician of the name of Alexandro ab Alexandro, who enjoyed some reputation as a practitioner, and filled the situation of Protomedicus to the island; on the duties of which office he composed a work, entitled "*Constitutiones et Regulata Jurisdictionis regii Protomedicatus Siciliæ elucidata*," written, as Haller says, in 1429, and published afterwards in a quarto volume by Philip Ingrassias, at Palermo.

In this century the Scarlet fever first made its appearance in Italy: and in the year 1440 the Art of Printing, which has tended more than any other human invention to improve, enlighten, and exalt, the human race, was first discovered at Mentz. From this discovery, in common with every other branch of useful knowledge, Medicine soon began to derive the most important advantages.

Before this century, the operation of Lithotomy was not practised by any regularly educated Surgeons, being engrossed by a set of itinerant practitioners, who pursued no other branch of the profession, were in general grossly ignorant, and masked the operation beneath a veil of impenetrable mystery. From what motive the regular members of the profession declined interfering in this most legitimate and important part of Surgery, which requires not only so much

manual dexterity, but also so much anatomical skill and practical judgment, does not clearly appear, unless it was out of deference to the memory of Hippocrates, who obliged his pupils to swear that they would not attempt the operation,—“*ne vero calculi laborantes scerabu*” being one of the clauses of the oath. About the year 1460, however, Germain Colot, a surgeon of great reputation and high in favour with Louis XI., determined upon breaking through this absurd rule, and, by ingratiating himself with some of the itinerant practitioners, found means to witness the operation; after which he commenced a series of experiments upon dead bodies; and, when he had attained what he conceived to be an adequate proficiency in performing the operation, he communicated his ideas to the physicians in attendance upon the court, through whose interest with the King permission was obtained for him to make a trial of his skill upon a condemned criminal, who happened to be afflicted with calculus. This man also having consented to undergo the operation on the condition of receiving his pardon if he should survive it, Colot performed it with the most complete success; his patient being fully convalescent in the short space of fifteen days; adding greatly to the lustre of Colot's former reputation, procuring a pension for him from the king, and contributing largely to extend his practice, especially in this department of the profession—which, from this period, became a regular part of surgical practice,

which may be almost regarded as having originated a new æra.

About the year 1472 the city of Bologna gave birth to the celebrated Alexander Achillini, who distinguished himself so conspicuously during this and the succeeding centuries, both as a physician and a philosopher. But the history of his literary and professional pursuits belongs more correctly to the succeeding century, which he dignified by his talents, and benefited by his labours.

From the many barbarisms that disfigure his style and mark him as belonging to an age far removed from the classic elegance of the days of Augustus, Le Clerc is inclined to assign a place in this century to Cælius Aurelianus, the last writer who appears to have adopted the tenets of the methodists, and the translator of the works of Soranus, (one of the principal founders of that sect,) with the addition of a considerable number of observations, partly original, and partly collected from various sources: this translation consists of eight books, three of which treat of acute and five of chronic complaints*. This work has the merit of preserving fragments and explaining the doctrines of several ancient writers

* "Celerum vel acutarum Passionum Libri tres." Parisus 1529. Fol.; and "Tardarum Passionum Libri quinque." Basilee. 1529. Fol.—Dalechamp published a complete edition in octavo, with notes, at Lyons, in 1567: and it also enters into the collection of medical writers, published by Stephanius and Haller, under the title of "Medicæ artis Principes."

whose works would otherwise have been totally lost. Upon these works Aurelianus pronounces his judgment with freedom not unmixed with severity; and his observations and criticisms bespeak him to have been an attentive and judicious practitioner, as well as a sound critic. He notices many complaints of which no mention is to be found in the writings of his predecessors; and many of his surgical observations are peculiar to himself. Speaking of the effects ascribed to music of curing the bite of the Tarantula, he observes that the first introduction of this practice was attributed to Pythagoras himself, who settled and founded his sect in those very parts of Italy in which the Tarantula is found. This practice he calls "*decantare loca dolentia*," which he explains by adding that "the pain is mitigated and dissipated by the tremblings and palpitations of the part*.

Aurelianus has given us a more copious description of the symptoms and progress of Hydrophobia†, collected with much assiduity from the several ancient writers among the Greeks, and especially from Soranus, than any of his contemporaries, or predecessors: and, among other facts he notices a case of spontaneous, or at least reputed spontaneous, Hydrophobia, in which the origin of the complaint could not be traced to the bite of any rabid animal. This corresponds in some degree with two cases recorded

* Tard. Pass. Lib. v. cap. 1.

† Celer. vel acut. Pass. Lib. iij.

by Morgagni*, on the authority of Kochlerus, of Hydrophobia resulting from the patient's drinking cold water when heated; as well as those recorded in the *Journal de Medicinet*, in which the complaint arose from excessive fatigue occasioned by a long march in hot weather: and of which Guy Patin† gives a similar instance. But, without attempting to question the evidence of such highly respectable witnesses, as to the correctness of the facts they relate, it may, perhaps, be permitted to doubt whether the disease in any one of these cases was really identical, in all respects, with that resulting from the bite of a rabid animal, which has hitherto been the opprobrium of medicine. We may suggest the strong probability that the dread of liquids, which no doubt led the observers to confound together two disorders of widely different natures, arose, in the cases at least adduced by Morgagni, simply from an irritable state of the stomach produced by inflammation, and susceptible of cure by the vigorous application of the usual antiphlogistic and depletory measures; while, in the true Hydrophobia, cure must even now be too frequently regarded as hopeless. Should future observation confirm the justice of this conjecture, and Hydrophobia prove to be merely a symptom which cannot be depended

* Epistol. Anatom. 8. Art. 31.

† Tom. 7. Juillet. An. 1757. p. 3. et suiv. Tom. 8. Août. 1757. pag. 61.

‡ Tom. 1. p. 273. Tom. 111. p. 169.

upon, otherwise than in connection with others, to furnish a diagnostic of the complaint, it will be necessary, in order to prevent confusion, to distinguish, by the adoption of some less objectionable name, the true malady arising from the bite of a rabid animal, and which rarely terminates in recovery, from that *Hydrophobia notha*, which is only symptomatic of gastric inflammation and holds out a hope of cure. Among other concomitant symptoms of *Hydrophobia*, enumerated by Cælius Aurelianus, is that of the continual Priapism which prevailed throughout the whole course of the complaint, of which a similar instance is recorded by Dr. Mead in his "Account of three cases of *Hydrophobia**".

Among other matters deserving notice in the works of this author, are his mention of Hydatids in some kinds of Dropsy; his recommendation of oil as an injection for the cure of *Ascarides*; and his remarks on the abuse of bitter and acrid substances in the cure of Gout, which he says he has known to produce a fatal termination of the disorder, by metastasis to the brain assuming the character of Apoplexy. He also informs us that Asclepiades was the first who applied the term *Catalepsy* to that mysterious species of complaint, which, although described by Cullen, was never witnessed by him; and is fortunately so rare, that but few practitioners, ancient or modern, can boast of having seen it. Aurelianus

* The Medical Works of Rich. Mead, M.D. 1 vol. 8vo. Dublin. 1767, page 519.

gives us all the various synonymes of this complaint, which he regards as akin to Apoplexy and Lethargy, but has not left any distinct description of its symptoms as enumerated by modern nosologists.

Among the other contributors to medical science, who were born during this century, however rude his manners, and mercenary his disposition, we must not pass without some notice the name of Jaues du Bois, or Jacobus Sylvius, who first saw the light at Amiens in France in 1478, and was educated by Tagaulitus. This man, whose talents were as pre-eminent as his manners were unamiable, was one of the fifteen children of a manufacturer of camlet; and, having the good fortune to have an elder brother at the College of Tournay, at Paris, who was a zealous promoter of literature, he enjoyed the most favourable opportunity of making himself master both of Greek and Latin. On selecting the profession of medicine, he applied himself assiduously to the works of the ancients, especially those of Hippocrates and Galen, of the latter of whom he became a most zealous disciple and defender. He did not, however, confine his studies to any single branch of the profession, but devoted his attention with equal assiduity to all. The science of Anatomy was enriched by him with a number of valuable discoveries; he being the first to detect those valves, which he terms Epiphyses, or membranous epiphyses, in the mouths of the *Vena azygos*, the *Jugular*, *Brachial*, and *Crural* veins, as well as at the

trunk of the *Vena Cava*, which arises from the liver. He also paid great attention to Pharmacy and Medical Botany, for his improvement in which he took many journeys to distant parts of the country, in order to have an opportunity of examining the plants in the places of their spontaneous growth. On his return to Paris, he gave private lectures on the whole theory and practice of medicine, from the works of his favourite authors, Hippocrates and Galen, and acquired such celebrity, during the two years that he delivered them, that pupils flocked to him from every part of Europe. His great success excited the envy and jealousy of the Parisian physicians, who took advantage of his being unprovided with a degree, to compel him to discontinue lecturing; in consequence of which he was obliged to visit Montpellier, for the purpose of graduating. His extreme parsimony, however, preventing the accomplishment of his purpose, he returned without a degree; but, succeeding in accommodating his differences with the Parisian professors, he at length took the degree of Bachelor of Medicine, in 1531, and became lecturer at the College of Triquet four years after, while Fernelius lectured in that of Cornouaille. In consequence probably of the anatomical and botanical demonstrations which Sylvius gave, but which Fernelius omitted, his class exhibited an overflow of pupils, while that of Fernelius was but scantily attended. In 1550, he was appointed Professor of Medicine at the Royal College, which he retained till his death

in 1557, at the age of seventy-seven years. He was a man of uncouth manners and sullen temper, and his parsimony, meriting even the name of avarice, was such that he is said to have adopted the practice of kicking a football, or carrying a billet of wood up and down stairs, in cold weather, for the purpose of keeping himself warm, and thus saving the expense of a fire. So strong an advocate indeed was he for the principle of æconomy, that he even made it the subject of a Treatise which he wrote for the benefit of his less wealthy pupils, and published under the title of "*De victus ratione facili et salubri pauperum scholasticorum.*" This unfortunate failing indeed obscured, and almost overpowered, all his better qualities, and detracted much from that respect to which his talents and erudition entitled him. His productions retained their popularity for many years, during the reign of the old school, but have now become obsolete. As an anatomical writer he had considerable claims to merit; and, notwithstanding the paucity of the opportunities he enjoyed for human dissection, the discoveries and improvements he made were great and important; these he published in his "*Isagoge Anatomica,*" and "*Observata in variis corporibus secundis.*" Besides these, he wrote several works on Pharmacy, in which art his proficiency was fully equal to that of his contemporaries; and he published a valuable edition of Mesue, accompanied by a translation and commentary of his own. He was an inveterate enemy of Vesalius, who, from having

been his pupil, became his rival in Anatomy, and wrote several works against him; one of the chief grounds of his dissatisfaction with Vesalius arose from the latter's presuming to correct Galen, to whom Sylvius was attached with such blind and irrational bigotry, as to defend his very errors. He lived single, and was said to have a kind of antipathy to females. In mathematics and mechanics he made also considerable proficiency, and acquired celebrity by some machines which he invented.

Somewhat later in this century we find Alexander Benedictus, a distinguished writer, and teacher of anatomy and medicine at Padua, as Castellanus informs us, "cum maxima frequentia auditorum." He was born at Verona, and was Physician to the Emperor Maximilian. He wrote "*Alexandri Benedicti Physici Anatomia, sive Historia Corporis humani: ejusdem collectiones seu Aphorismi*," a work which has been often reprinted—and a treatise on the plague, in which he gives a distinct account of a feather-bed, which, after having been laid by on suspicion of infection for seven years, produced infinite mischief on being again brought into use*. This, indeed, is no more than might have been expected, since experience has fully proved that the contagious matter of disease undergoes no change from mere confinement, and one hour's thorough ventilation would have done more real good in dissipating

* Bened. de Pest. cap. 3.

the infectious effluvia than putting by in a close place for twice seven years.

Botany, which had not yet been regarded as more than the humble but useful handmaid of medicine, consisting solely in a kind of empirical knowledge of the peculiar properties of a few plants handed down by vague tradition, and not exhibiting the slightest pretensions to scientific arrangement, made nevertheless some trifling advance to improvement during this century; in which we find the study of plants revived by Hermolaus Barbarus*, who first attempted the arduous task of correcting the numerous errors to be found in the works of Pliny and Dioscorides. No real progress, however, was made towards establishing the science of Botany upon a rational or stable foundation, before the following century, in which the genius of Gesner, aided by the labours of Brunfels, Fuchs, Clusius, Camerarius, and Columna, prepared the materials for that magnificent and permanent structure, which the illustrious Linnaeus and his contemporaries have completed and embellished.

The capture of Constantinople by the Turks, which took place during this century, exerted some influence over the state of medical knowledge; for multitudes of Christians, flying from that city to escape the persecutions of the infidels, brought with them to Italy a large number of MSS. of the Greek medical writers,

* He died in 1493 at the age of 40.

and thus furnished the studious with an almost inexhaustible fund of materials for exposition and commentaries, of which they did not fail to make use; labours not only commendable in themselves, but eminently serviceable in preparing the way for future improvement. While thus engaged, an inquiry naturally suggested itself as to the degree or resemblance which subsisted between the doctrines of the Arabian and the Grecian writers: an inquiry which continued to occupy medical men for at least half a century, but which, relating more to words than facts, tended but little to the substantial improvement of the science. So low indeed was the state of Medical knowledge, especially as to the cure of diseases by internal remedies, during the greater part of this century, that medical writers did little more, as we have already seen, than pirate, with the most servile fidelity, from the works of their predecessors, and even of their contemporaries. Surgery, however, was prosecuted with somewhat greater success, as has been already pointed out in the preceding portion of this chapter.

It was towards the close of this century, that a complaint, of which no former example stands upon record, and of which no recurrence has since been observed, commenced its singular visitation in our Island, whence it spread to other parts of the world, under the denomination of the English Sweating Sickness*, from the place of

* Sudor Anglicanus.

its origin and the leading feature of its character. It made its first appearance in the army of King Henry VII., immediately after its disembarkation at Milford Haven in the year 1483; and prevailed in London from the first of September to the end of October. It returned six several times, but always during the height of summer; its first return being in 1485; the second in 1506; the third in 1518; the fourth in 1528; the fifth in 1529; and the last in 1551. Such was its violence in 1518 that few of those whom it seized survived beyond the third day; it carried off a large proportion of the nobility, and in many towns half the population fell victims to it. On its fourth appearance in 1528, it proved for the most part fatal in the course of six hours, thinning the ranks of the courtiers, and even endangering the life of the king. It was not till its fifth visit in 1529 that it extended its ravages to Belgium and Germany, not only spreading the most fearful mortality among the inhabitants, but breaking off the conference respecting the Eucharist between Luther and Zuinglius at Marburg. On its last appearance in England, in 1551, it occasioned no fewer than one hundred and twenty deaths in the course of twenty-four hours; and among other victims to its malignity were two sons of Charles Brandon, Duke of Suffolk. It was most destructive, however, in the County of Salop, where the celebrated Doctor Caius then practised, and by whom an account of its symptoms has been given to us, from which it appears to have resembled the plague in Athens.

Caius distinguishes it by the more appropriate denomination of the Pestilential Fever and Contagious Ephemera: the sweating stage, from which its vulgar appellation was derived, being merely a symptom, or rather the crisis, of the complaint. It commenced with an affection of some part of the body, followed very shortly by great heat; a sensation of burning internally; unquenchable thirst; restlessness; sickness, but unaccompanied by vomiting; head-ache, and delirium, succeeded by languor; a strong propensity to sleep; rapid pulse; frequent and laborious breathing. Children and poor and aged persons were the least subject to it: of the other classes of the community none were secure, and few who were attacked survived: and in one town, in which it lasted for seven months, it carried off a thousand of the inhabitants. Even those who were absent in France or Flanders at the time of its attack were not secure, and among other circumstances one of the most remarkable, if truly stated, is the fact that, when abroad, the Scotch uniformly escaped, while the English alone suffered, and even foreigners residing in England were not subject to attack. This can only admit of explanation on the supposition of the diet of the English being fuller, and their habits grosser, than those of the inhabitants of other countries; whence they were of necessity more subject to inflammatory attacks, and less capable of withstanding them. Of those who recovered, none began to exhibit symptoms of

amendment till after the expiration of twenty-four hours from the commencement of the paroxysm. Physicians at first hesitated as to the plan of treatment to be adopted; and, ascribing the complaint to an interruption of perspiration, ultimately directed all their efforts to the restoration of this discharge, and, after accomplishing this, to its incessant maintenance for a number of days together, the least check being productive of the most imminent danger, if not death. On this account the patient was closely confined to bed, and guarded from cold; and, when the efforts of nature were unequal to the accomplishment of the object in view, the aid of medicines, wine, warm covering, and other auxiliaries, was called in. The severity of the attack abated, in general, after a continuance of about fifteen hours; but the period of danger did not terminate before the twenty-fourth hour. In some cases, it was necessary to renew the diaphoresis a second time; and, in a few robust constitutions, even to the twelfth time. The greatest danger resulted from quitting bed; since the least check of perspiration, as already stated, was productive of the most formidable results. The patient was obliged to abstain wholly from flesh; and, for the first six hours, from drink also: since, about the seventh, the complaint suffered an exacerbation, and at the ninth delirium usually supervened. Where timely aid was given, and the plan of cure rigidly adhered to, the patient most commonly recovered. From a work published by

Dr. William Cohan, in the year 1584*, it would appear that there was a seventh return of this formidable malady in the year 1575, commencing on the 6th of July, and continuing till the 12th of August; during which time it carried off no fewer than five hundred and ten persons, *all males*, a fact which seems to establish the position already hazarded, when speaking of the circumstance noticed by Dr. Caius, of its ravages being almost exclusively confined to the English both at home and abroad. To no other cause does the entire exemption of the females, in the epidemic of 1575, appear attributable than to their greater temperance both in eating and drinking.

The close of the fifteenth century was, however, rendered still more remarkable by the first appearance of Syphilis, or the Venereal Disease, in Europe; a complaint which rapidly spread over nearly the whole of Europe, and proved more extensively fatal than either the Small Pox or Measles. This complaint is generally believed to have been brought from the New World by Columbus, and to have made its first appearance in

* *"The Haven of Health, chiefly gathered for the comfort of Students, amplified upon five words of Hippocrates, viz. labor, cibus, potio, somnus, Venus. Whereunto is added A Preservation from the Pestilence, with a short censure of the late sickness at Oxford."* This is a curious and learned work, filled with quotations from the classics, recommending temperance and exercise as the best preservatives of health. The author was born in Somersetshire, about the middle of the sixteenth century, and took the degrees of Master of Arts and Bachelor of Medicine at Oxford.

1492, but, its progress being trifling at first, attracted little notice till two years after, when it broke out in the French army engaged in the siege of Naples, after which it was quickly propagated through Italy, France, and Spain, and in a little time extended itself over the rest of Europe, Africa, and Asia. And here it may not be amiss to remark that the Spaniards, who first introduced this dreadful scourge from the New World, on their return from Columbus' first expedition, communicated to the unhappy Indians complaints as formidable, and holding out fewer chances of escape, in exchange for this penalty of illicit and abused indulgences: the small pox and measles proving to the untutored inhabitants of the American Islands more fatal in their ravages, and more extensive in their depredations, than even the worst forms of Syphilis among the enlightened nations of Europe. Writers, indeed, are not wanting who deny the American origin of this complaint, especially the celebrated Sydenham, who, in the second of his "*Epistolæ Responsoriæ*," supposes it to have originated in Africa*, in some of the countries bordering on Guinea, stating that he had been

* "Mihî vero potius è regione aliqua Nigritarum Guineæ confinemorum originem transisse videtur; cum à plurimis nostrorum, usque fide dignis, qui Insulas Caribæ dictas incolunt, delicta mancipia recens à Guinea allata, etiam antequam in terram descenderint, tunc alia ibidem degentia, hoc morbo tentari, nullâ copulâ impari prægressa; ita ut non raro uterque aliquam eorum familiam, viros scilicet, mulieres, liberosque male muletet."—*Ep. Resp. II. ad Hen. Paman M.D.* p. 48.

informed by many planters of credibility that whole cargoes of Guinea Negroes, on being imported into the West Indies, were sometimes found tainted with this complaint, even before they had been disembarked : and that others resident there were afflicted with it without any previous sexual intercourse. Sydenham, however, appears to have forgotten the commercial intercourse which subsisted between the Europeans and the Africans, by which the complaint was first introduced among the negroes, and that the fact of its re-importation from Africa into the West Indies in no respect tends to invalidate the account given of its original introduction from the new into the old world, unless it could be clearly demonstrated to have existed in some part of the latter, previously to Columbus' first visit to the Bahama islands : but of this fact not a shadow of evidence has been brought forward by Sydenham or any other writer, nor can it be believed that such evidence exists.

Such was the consternation the first appearance of this malady produced in Edinburgh in 1497, that the inhabitants, conceiving it to be a kind of plague, capable of being propagated by contagious effluvia from the bodies of the diseased, banished all who were afflicted with it to the island of Inch Keith, where they were compelled to remain until they had completely recovered. This alarm could hardly have been produced, even in those days of ignorance, had it merely been an aggravated form of an old complaint, or had not the novelty and severity of the symptoms baffled all the skill of

the practitioners. Hence, notwithstanding all the learning and ingenuity which have been displayed in the endeavours of many modern writers to prove that Syphilis was a complaint familiar to the ancients, and not one which was described for the first time in the fifteenth century, their arguments, although wearing a far stronger air of plausibility than those of our countryman Sydenham, must be placed alike upon the same shelf; and we should adopt the popular notion of its West Indian origin, as the one most consonant to known facts and authentic history.

Marcellus Cumanus, who wrote during the invasion of Italy by Charles VIII. of France, in 1495, is the first author who clearly describes syphilitic chancres, and tells us, that he succeeded in accomplishing their cure in a number of cases. "Vidi quendam patientem *carolas* in virgâ, in parte præputii interna,"—and in another place, "Ego infinitos bubones causatos ex pustulis virgæ, et ex nimia fatigatione et labore, curavi:" and it is evident from what follows, that these two passages relate to precisely the same complaint, for he says a little farther on, "Ut resolvatur Rubo in principio et augmento, a causa primitiva vel a *carolis*, fiat hoc," &c. &c.: again, "Aliquando incipiebat pustula una in modum vesiculæ parvæ sine dolore, sed cum pruritu: fricabant, et inde ulcerabatur tanquam fornica corrosiva; et post aliquot dies incurrabant in angustiis propter dolores in brachiis, cruribus, cum pustulis magnis." We shall with difficulty meet with any passages in writers of a much

more ancient date, which so clearly indicate the complaint.

The next writer whom we find to have treated on this subject, is that great restorer of Greek Medicine, Nicholas Leonicensus, who was a professor at Ferrara: but the only symptoms he notices are, "*Pustulæ in obscenis partibus orientes, quæ postea per totum corpus, ac præcipue in facie, cum dolore se dispergunt.*"

At this period also, Caspar Torella, physician to Cæsar Borgia and Pope Alexander VI., (by whom he was afterwards made Bishop of Saint Just,) practised medicine. He did not, however, commit his observations to writing, till ten years after he had retired from practice. He has added somewhat to the account given by Leonicensus, and described the nocturnal pains and various kinds of ulcerations. But all his reasonings on the subject are borrowed, according to the fashion of the day, from Avicenna. He gives, however, the history of five cases, containing some new and singular facts. In the first of these, a cancerous ulcer appeared on the second day; on the sixth, the most excruciating pains came on; and, on the tenth, an immense eruption of pustules. In the second, the pustules appeared on the thirtieth day; and acute pains, with hoarseness, on the fifth and the thirtieth. In the fourth, the pains came on almost instantly; but, at the end of two months, after a scabby eruption had broken out over the whole body, the pains became mitigated; and matters continued for ten months in the same condition; at the end of the

year, however, two ulcers broke out upon the legs, accompanied with violent pain. In the fifth, he speaks of pains, pustules, and ulcers, which completely laid bare the bone. His plan of cure is still more imperfect than his account of the disease, and consisted solely in purging, bleeding, dilution, and baths; varying in no one particular from the plan pursued by the Arabians in ordinary cases of ulcer and some kinds of cutaneous affections. As to mercurial frictions, he reprobates them as pernicious, declaring that many had been thus killed by ignorant Empirics, and among others, the Cardinal of Segovia, Alonzo Borgia, and his brother. The ointment most in use in his time, he says, was that Saracenic one recommended by Guido, as a remedy for Itch; and that, although it acted upon the gums and teeth, had the effect of drawing the humours out of the bones. He also gives the formulæ of two other mercurial unguents, which, he says, proved fatal to multitudes, for whose destruction he considers that the rash empirics who recommended such a practice would have to answer, if not in this world at least in a future state of existence. Hence, we may be able to form some idea of the degree of ignorance which prevailed among even the first physicians, as to the method of treatment required for this novel complaint.

James Cataneus, who appears to have flourished nearly about the same time with Torella, is somewhat more explicit; in addition to the symptoms already enumerated, he speaks of great

heat in the penis, with ulcers there, as well as in the throat: he also observes, that the uvula is sometimes destroyed; and that the virus occasionally lies dormant in the system for many years before it breaks out: but Fernelius thinks it too much to believe it could thus lie dormant, as Cataneus says, for so long a period as thirty years. Cataneus gives an account of the ordinary mode of treatment; he also recommends mercurial friction to such an extent, as to make the gums swell; adding cautions respecting its use, and remedies against the mischiefs which it might occasion. He is also the first who advises a repetition of the friction, after the patient has somewhat recovered, in those cases in which a portion of the virus appears to remain in the system; and he says he has often witnessed the happy effects of this practice. He says nothing on the subject of Guaiacum, which seems to prove that he wrote before the introduction of that remedy.

About the same period with Cataneus and Torella, flourished another writer, Peter Maynard, of Verona; who, although silent as to the use either of mercury or Guaiacum, describes the symptoms of the complaint more fully and clearly than any of those who preceded him. He describes the corrosion, not only of the Uvula, but likewise of the Nose, and the Trachea; and speaks also of ulcers and nodes on the joints. But, although he mentions abscesses arising in various parts of the body, buboes are neither spoken of by him nor by any other writer of the age. May-

nard was an Astrologer as well as a physician, and, having discovered, as he supposed, that this complaint originated in some malignant conjunctions of the Planets, he ventured to predict its termination in the year 1584; wisely, however, for his own credit, fixing upon a period for the fulfilment of his prediction much beyond the probable limits of his own natural life.

During this century, as the rage for Alchemy began to decline, the application of Chemistry to Medicine furnished a fresh stimulus to the prosecution of Chemical discoveries. This was, in a great degree, owing to the exertions of Basil Valentine, a German Monk, who first discovered Ammonia, or the Volatile Alkali, as it was denominated, in contradistinction from the vegetable and mineral, or Potass and Soda, which were more fixed in their qualities. Valentine also has the merit of first bringing Antimony into notice, as an important addition to the *Materia Medica*, and in his celebrated "*Currus triumphalis Antimonii*" pointed out a number of valuable preparations of this metal, which, by their success in practice, and the controversy they excited, gave, with the aid afforded by the recent discovery of the invaluable art of printing, a vigour to Chemistry, such as it had never before possessed. Isaac Hollandus, though retaining a deep tinge of the Alchemical dye, contributed powerfully to direct the attention of his contemporaries and successors to improvements in the art of metallurgy, and prepared the way for George Agricola, whose masterly performance, "*De Re metallica*,"

cleared this branch of Chemistry from the remaining rust of Alchemy, and laid the foundation of all the splendid discoveries that have followed in succeeding ages.

Such was the state of Medicine in all its branches, at the close of the fifteenth century. The progress it made in those which succeeded, and the increased number of writers of eminence, whom the discovery of the art of printing, to which we have already alluded, produced, will render it necessary, for the sake of perspicuity, to adopt a new plan of arrangement for the succeeding volume, in which the several branches of medical knowledge will be distinctly treated of in separate chapters.



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THE HISTORY
OF
MEDICINE, SURGERY,
AND
ANATOMY.



THE
HISTORY
OF
MEDICINE, SURGERY,
AND ANATOMY,

FROM THE
CREATION OF THE WORLD, TO THE COMMENCEMENT
OF THE NINETEENTH CENTURY.

BY WILLIAM HAMILTON, M.B.

*Ut alimenta sanis corporibus Agricultura, sic sanitatem
aegris Medicina promittit.* Celsus.

IN TWO VOLUMES.

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We at length begin to emerge from the gloomy shade of that mental eclipse which so long held the world in darkness and ignorance, retarding the progress of human improvement, and preventing the nobler faculties of the soul from attaining to their due development. The two great

events, the art of printing, and the emancipation of the human mind from the trammels of superstition through the Apostolic labours of the early reformers, by which the last century was so pre-eminently distinguished, prepared the way for the rapid advance made from this time in almost every department of human knowledge. The several branches of Medical science were not among those least benefitted by the general impulse which now began to accelerate the march of mind*.

Among the writers of this century, the first we meet worthy of notice is George Almenar, a Spanish physician, who published in 1512 a work on Syphilis, entitled "*Libellus de Morbo Gultico septem capitibus absolutus*," which was so eagerly sought after, that it underwent many impressions in a very short space of time, and has been included in the collection of treatises upon this subject published by Luisinus. Almenar appears to have had an extensive experience in this complaint, in which his chief remedies were warm bathing and mercurial frictions, with an alterative syrup exhibited on the intermediate days. He was in the habit of checking or moderating salivation by the exhibition of clysters and purgatives.

* About the year 1501, the scarlet fever made its first appearance, as is generally believed, at Naples, where it was called *Rossalia*. At least the first account of it which we find upon record, is that of Ingrassias, who has described it in his treatise "*De Tumoribus præter naturam*, Tractatus i. chap. i.

Freind, in his *History of Medicine*,* speaks of a Spanish Physician whom he calls John Almenar, who is not improbably the same of whom we have been already speaking under the name of George; and this probability derives considerable confirmation from the account given of him by Freind, who mentions his having published a work on Syphilis in the year 1516, in which he adds but little to the description previously given by Leonicensus. He approved of the use of Mercury, but employed it in the same timid manner as the Arabians; and was so far from desiring to excite salivation, that immediately on its appearance he endeavoured to check it by the exhibition of purgatives. From this striking resemblance in point of practice no less than in point of time, between these two, we may not very unreasonably conclude that they were one and the same individual, with two distinct Christian names. Early in this century Encharius Rhodion, a physician, of Frankfort, published in German the first popular work on Midwifery, the practical rules of which were all taken from Hippocrates and other ancient writers; but, from the impossibility of following some of them, it was evident he had never practised the art; a censure equally applicable to every direction up to that time published, the whole of which tended more to mislead than inform, and to increase difficulty and danger, in place of removing them. In 1532 Rhodion's work was translated into Latin, and soon after into

* *Fr. Hist. Med.* p. 325.

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about the time a remarkable coincidence occurred in the medical practitioners of this country in consequence of a serious case of the fatal method of bleeding in puerperal hemorrhage and adopted by Peter Brown, a French physician who visited Portugal in 1515. Brown was the son of a distinguished advocate who resided at Fontenay-le-Comte in Poitou, where he was born in 1478, and, having devoted a moderate amount of time to the study of Philosophy and Law, on the 14th of May, 1514, at the University of Paris. Being of a studious and inquisitive disposition, he carefully examined the doctrines of Hippocrates and Galen, and finding, on com-

parison with the writings of the Arabians, that these last had introduced many things not sanctioned by those great fathers of Medicine, he proceeded to restore their doctrine and practice to its original purity: for which purpose he commenced with lecturing out of Galen, in place of Avicenna, Rhazes, and Mesue, and published at his own expense a new edition of Galen's "*Opus Separatas ad Glauconem*," accompanied by a commentary of his own: he next explained Galen's work "*Περὶ τῆς τρυφῆς ἰατρικῆς*,"—after which he expounded the writings of John Mesue, which he mistrusted so much, either from his own ignorance of Botany, or from the great obscurity of the author's style, that he resolved upon travelling to improve himself. Previously, however, to commencing his travels, he pointed out the error which prevailed among practitioners of bleeding in cases of Pleuritis, on the side opposite to the seat of the complaint, and not upon that which is affected: this practice he demonstrated, in a public disputation, to be repugnant to reason, and contradictory to the doctrines both of Galen and Hippocrates. He then commenced his travels and, proceeding to the city of Ebora, in Portugal, practised Physic there for some time, and broached his new doctrine of bleeding in Pleurisy, which appears from the first to have given great dissatisfaction, and to have produced a long and intemperate epistle from Denys, who was Physician to the King of Portugal. In answer to this, Brisset wrote a full justification of his innovation in practice, which, however, was

prevented from appearing by the death of its author in 1522; three years after, however, it was printed in Paris by his friend Anthony Luceus.* The dispute thus kindled between Brissot and Denys, had produced a complete civil war among the followers of *Æsculapius* in Portugal, and was deemed of so much importance as to be brought under discussion before the University of Salamanca, where Denys' partizans had sufficient interest to procure a decree forbidding Brissot to practice till the question was decided: after the most mature deliberation, however, and after attentively hearing all the arguments on each side, the University came to a decision, that Brissot's practice was correct, and strictly conformable to the precepts both of Hippocrates and Galen. This decision, so fatal to their hopes, and contrary to their expectations, served only to inflame Denys and his partizans the more; and declaring themselves the reverse of satisfied, they appealed against it to the Emperor Charles V. himself; Denys not only branding the doctrine of his opponent with falsehood, but denouncing it as impious and heretical, and as pernicious to the soul as Luther's schism was to the soul. He accused Brissot and his adherents of ignorance and of being downright Lutherans in every thing. Although the Emperor, to whom they appealed, came to no decision upon the case,

* First printed in 1529, and again at Paris, in 1530, in a life of the author, by Renatus

the death of Charles III. Duke of Savoy, who had been bled in an attack of Pleurisy, in the manner advocated by Denys, threw a discredit upon his cause, and greatly strengthened the party of the Brissotines.

The novelty of Syphilis and the formidable character of its symptoms continued to attract the attention of both writers and practitioners, whose works, though not always wearing the stamp of originality, contributed slowly to the accumulation of knowledge, by keeping the attention of practitioners directed to the subject, as well as by suggesting improvements in the method of treatment, or discussing the comparative merits of those most in vogue. Accordingly, we find, among the writers of this period, two who wrote expressly upon this complaint, about the year 1519, Leonard Schmaus, and John de Vigo, the latter of whom had been physician to Pope Julius II. Of these writers the former added but little to the knowledge previously acquired, beyond the mention of guaiacum, which had then been recently introduced into Europe from the West Indies, as a remedy for this complaint: the latter, however, makes many observations which appear to have escaped the attention of his predecessors. He remarks that the pustules frequently assume a livid hue on the pudenda, but acquire a florid colour as the cure advances, and afterwards spread, like warts, over the whole body; that violent pains are felt at the end of six weeks; and often, after the lapse of an entire year, virulent ulcers break out, accompanied with nodes, caries of the bones,

abscesses, and pains which chiefly affect the joints and forehead: that the disease becomes confirmed in ten, twelve, or eighteen months, and sometimes terminates in other affections. On the subject of cure he remarks, that all the remedies formerly employed were useless, and that no dependance could be placed upon anything but salivation produced by frictions with mercurial ointment, which removed the complaint completely within a week. Modern experience fully confirms the truth of this observation, and mercury is still regarded as the only remedy which can be depended upon to effect a complete cure. Adventurers have not been wanting indeed to take advantage of the popular prejudice against mercury, and turn it to their own account, by professing to cure this lamentable affliction by means of nostrums, composed of substances taken from the vegetable kingdom, and free from every particle of mercury; but either these their nostrums have proved upon trial, to be utterly inert, and to delude the patient with false hopes, while the disorder has been gaining more complete possession of the constitution, or the active constituent has been proved to be the muriate or some other salt of mercury. This, while it produces an apparent mitigation of the symptoms, or even a total subjugation of the complaint, within less time than that occupied by regular practitioners in effecting a radical cure, is only transitory in its effects, and delusive in its promises. When syphilis has once laid firm hold of the constitution, and stormed the citadel of health, the introduction of mercury into the

glandular system by means of friction, and the proof of saturation with the mineral particles by the commencement of salivation, afford, as every practitioner of experience well knows, the only certain means of expelling the invader, and restoring lost health to the impaired constitution.

John de Vigo speaks of a mercurial cerate, which he had repeatedly employed in such cases with the happiest effect; but although, in slight attacks, cutaneous absorption may be able to introduce a sufficiency of mercurial particles into the system to renovate the constitution, in old and inveterate cases the rapid and thorough saturation of the system by mercurial frictions in the region of some of the glands, will alone be found adequate to the end in view.

That distinguished anatomist, Jacobus Carpus, or more correctly speaking, Jacobus Berengarius,*

* James Berengarius was born at Carpi, in Modena, about the end of the fifteenth century; and hence, according to the custom of the age, obtained the name of Carpus, or Carpensis, by which he was most commonly known. He was initiated in the practice of Surgery by his father, who was an eminent surgeon, and studied languages and philosophy under the celebrated Albertus Mantius. He went at a proper age to Bologna, and thence to Padua, where he was for some time Professor of Anatomy. In 1515 he returned to Bologna, and was appointed Professor of Anatomy, which post he held till 1555; during which time he dissected above one hundred subjects, which, if we consider the prejudices with which he had to contend, was a large number. Indeed he was charged in that ignorant age, as Erasistratus and Herophilus had been before him, with dissecting men alive, in order to observe the motion of the intestines; and was obliged to quit Spain on account of the odium which this practice had brought upon him. This tale however, originated solely, it may be believed, in the ignorance and prejudices of a dark and superstitious age, as well as in Beren-

of whom we shall presently speak, is supposed to have been the first who introduced the practice of friction into use, and is said to have accumulated so much wealth by his success among his patients, as to have been able at his death to bequeath a sum of forty or fifty thousand scudi, about (£10,625) to his patron the Duke of Ferrara, exclusively of an immense weight of gold and silver vessels, worth perhaps as much more. Le Clerc says, he killed great numbers by his practice, but upon what authority he makes this assertion does not appear. Freind imagines that John de Vigo learned the method of curing Syphilis by mercurial friction from Berengarius, but we have already seen that the practice was at least partially adopted by Almenar some years before.

Guaiacum, which, it has been observed, was first recommended for the cure of Syphilis by Schmaus, owes its first introduction to Gonzalo Fernandez, who, having contracted this complaint at the Siege of Naples, spoken of in the last chapter, and meeting with no practitioner in

garius' known antipathy to the Spaniards; especially as we find a similar charge, substantiated by as little evidence, brought against that distinguished Anatomist Vesalius. The tale may not improbably be referred to the indignation of the clergy, whom he appears to have offended by the indecency of his conversation on the subject of his dissections, and the profligacy of his habits, which was such as to oblige him to quit Bologna. He retired to the dominions of the Duke of Ferrara, where he died about the year 1527; bequeathing, as has been mentioned in the text, his wealth, which was immense for the age, to his princely patron. His researches and discoveries in Anatomy will be noticed farther on.

Italy who understood its treatment, or was able to effect his cure, determined to seek the means of recovery in those regions from whence the malady was believed to have been imported, and embarked with this view for the West Indies, where he understood the complaint to be as common as measles and small pox in Europe.

It cannot but be regarded as a memorable fact, that the poison and its antidote should be both imported from the same place; and, in a similar manner, the shores of those islands furnish in the leaves of the white cedar, (*Bignonia pentaphylla*) an antidote to the acrid juice of the manchineel (*Hippomane Mancinella*), which grows intermingling with it. The fact, however, of Fernandez's visit to the West Indies in quest of a remedy, at what he understood to be the fountain-head of the malady, so early as the year 1494 or 1495, within three years after the reputed introduction of the complaint, is highly important. It furnishes a confirmation of the popular opinion respecting its origin, and disproves all the fine-spun theories of those who imagine that it was known in Europe before the discovery of America. Had not the complaint been really new, can we suppose the European practitioners would have been so ignorant of its proper treatment, as to render it necessary to seek a remedy in the regions whence it is said to have been imported, and where, from the frequency of its occurrence, the inhabitants were expected to have more experience in the method of its cure?

Fernandez, having experienced in America the salutary effects of guaiacum in counteracting the ravages of Syphilis, availed himself of this knowledge on his return to Spain, and made a rapid fortune by the cures he effected; while he secured the monopoly of the remedy by carefully guarding the secret, till revealed to the world, as has been already observed, by Leonard Schmaus, in 1518.

Among the events of importance which took place in the Medical History of the year 1518, we must not omit the foundation of the College of Physicians in London, which, however, assailed by the clamours of the ignorant, and the misrepresentations of the interested, has been productive of the most incalculable advantages, both to the practice of Medicine, and to the welfare of society. It has elevated the former to its proper rank in public estimation, and rescued the latter from the depredations of uneducated and unprincipled adventurers, who fattened upon human folly, and drew their ample revenues from the hideous mass of human infirmities. This great, this national benefit we owe to the patriotism and liberality of Thomas Linacre, an English Physician, of the time of Henry VIII.; a man no less distinguished for the extent of his talents, than for the urbanity of his manners, and the comprehensiveness of his views. This illustrious individual no less an ornament than a benefactor to his country, was born at Dover, about the year 1460, and educated at Oxford, where he was elected a fellow of All Souls' College in the year 1484, at the early age of twenty-

four, having pre-eminently distinguished himself by his talents and application. Desirous of farther improvement, and anxious to visit the classic shores of Italy, and study Virgil beneath the shade of his own Mantuan beech, he determined upon travelling, and proceeded to Florence, where he experienced the most flattering reception from Lorenzo de Medici, the distinguished patron and reviver of literature, the most learned man of his age, and the generous promoter of learning among others. Lorenzo, with his accustomed liberality, allowed Linacre to participate with his own sons in the instruction of their tutors, Demetrius Chalcondyla, and Angelo Politiano, by which he did not fail to profit to the utmost, and, under these two teachers made such progress both in Greek and Latin, that he even rivalled his masters in the accuracy of his delivery and the purity of his composition. Having thus stored his mind with a more than ordinary proportion of classical erudition, he applied himself to the study of Philosophy and Medicine; labouring especially to make himself master of the doctrines of Aristotle and of Galen, which no Englishman had ever attempted before. In this he was so successful, that he translated several of Galen's works in the most masterly manner, and in so chaste and elegant a style, that his translation might have been mistaken for a production of the age of Augustus, and supposed to have proceeded from the pen of a Livy.

Such was the professional eminence to which he attained, that soon after his return from Italy, he was selected by that clear-sighted mo-

narch Henry VII., to superintend the health and education of Prince Arthur, and afterwards became first Physician to that King, his son Henry VIII., and the Princess Mary. But, independently of the honours deservedly lavished upon him by the court, we have substantial proof of his talents in the signal success of his practice, and in the correctness with which he predicted the sudden death of his friend Lily, in the event of his suffering himself to be over-ruled by rash men, who laboured to persuade him to consent to the excision of a malignant scrophulous humour which he had on his hip. The event fell out precisely according to Linacre's prognosis.

Such was his zeal for the improvement of his profession, that he expended the wealth he obtained by his practice, in endeavouring to promote it, and founded for this purpose two Medical lectures at Oxford, and as many at Cambridge.

But his most important foundation was that of the College of Physicians, which he was led to project from the low state of Medical Science at that period, and the multitude of incompetent pretenders, whom the facility of obtaining licences to practice, without a due preliminary inquiry into the state of their Medical knowledge, let loose upon society. In those days both the Bishop of London and the Dean of St. Paul's possessed the important privilege of examining and admitting Medical candidates to practice within their respective jurisdictions: while other bishops claimed a similar power within their several dioceses. Linacre's comprehensive mind

was not slow to detect, nor at a loss to discover the only effectual remedy for an evil so fraught with mischief to the health of the king's subjects, as well as to the honour and utility of the Medical Profession : and he accordingly suggested the foundation of a college, to be composed of men professionally capable of determining upon the qualifications of the various candidates, and the degree of their fitness to undertake the medical care of their fellow subjects.

He availed himself of the favour he enjoyed at court, and the personal friendship of Cardinal Wolsey, to accomplish his design ; and obtained accordingly letters patent from the king, on the 23rd of September, 1518, for the incorporation of the College of Physicians, with various rights, powers and immunities ; and among the rest, the exclusive privilege of admitting persons to practice, and the power of examining prescriptions. By this charter no person was to be suffered to practice Medicine in any place beyond the diocese of London, without first undergoing an examination, and obtaining letters testimonial of his qualifications from the college, except in case of being a graduate of one or other of the two Universities of Oxford or Cambridge, such graduates being already privileged to practice anywhere within the kingdom of England, except the city of London, and a circuit of seven miles' radius around it, without any bishop's licence. This charter was afterwards confirmed by act of parliament in the year 1523, in the fifteenth of the reign of Henry VIII. The immediate effect of this mea-

sure was, as Linacre had clearly foreseen, to diminish the number of practitioners, and, by rendering those who remained more select, to add to the dignity as well as the emoluments of the profession. Linacre was the first president of his own college, which office he retained for seven years, the meetings taking place at his house in Knight-Rider street, which he bequeathed to the College on his death. That event took place on the 21st of October, 1624, in the 64th year of his age; and he was buried in St. Pauls, London, where a monument was erected to his memory three years after, by the celebrated Doctor Caius.

About this time the efficacy of the China root and sarsaparilla, in the mitigation or cure of syphilitic symptoms, was made known by Aloysius Lobera, a Spaniard, who was physician to the Emperor Charles V., and who, having learned the use of these remedies in the course of his extensive travels, wrote a work on the symptoms and treatment of Syphilis. Notwithstanding its brevity, this work contains a larger proportion of valuable observations than any of the more voluminous productions of other writers. Besides the chancres, (which he regards as the most infallible proofs of infection) and other symptoms, he speaks of a relaxation of the uvula, and the swelling of the tonsils, which however never terminates in suppuration; pains, chiefly in the ancle and thighs; callosities on the hands and feet; abscesses in various parts, especially in the membranes and bones; in which case the bone itself rarely escapes becoming carious. He is the first writer who notices buboes, or observes that

when these or other tumours break, and are properly healed, the disease is eradicated. His observations on the plan of treatment are not less judicious: he explains accurately the method of conducting the mercurial frictions, directing the patient's chamber to be kept close and warm, and forbidding his linen to be changed: he continues the use of the ointment even after salivation has commenced, and until the symptoms begin to amend, but assigns no limits to the period of its continuance. He is, with the exception perhaps of Fracastorius, the first who recommended mercurial fumigation, the mode of conducting which, as well as the necessary preparation for it, he explains with the utmost perspicuity; and regards it as an admirable remedy in all inveterate cases, and in persons of a robust habit of body; but prohibits it altogether in cases of weak, or hectic patients, or such as are subject to cough, asthma, or dropsy.

The year 1527 is memorable in the annals of medicine, for having first witnessed the extravagancies of that prince of egotists and most impudent of empirics—the celebrated chemical adventurer, Paracelsus,—who succeeded, by dint of effrontery, in passing himself for a man of talent and learning, upon men who were as much his superiors in erudition as they were in ability and in modesty.

This bold empiric sprung from a family, of the greatest obscurity, in the canton of Appenzel* in

* He was born, it is said, in 1493.

Switzerland, having a considerable quickness of talent, and having been early initiated into some of the most important secrets of chemistry, formed to himself a high opinion of his own importance. Upon this foundation he commenced a sort of rambling life; declaring, that after the most careful examination of the principles of the medical art, he found them all erroneous, and had therefore determined, after visiting the schools of France, Italy and Germany, to travel in pursuit of medical truth, searching for it not only among the learned, but even among old women, mountebanks, barbers, and quacks of every description. After passing several years in this rambling kind of manner, he succeeded in obtaining credit for an erudition which he never possessed, and for important acquisitions in science which he never made; exhibiting a pompous display of the various countries he had visited, and the persons of celebrity with whom he had contracted, or pretended to have contracted, an intimacy. By such means he succeeded in impressing on the world an exalted opinion of his superiority; and it must in truth be admitted, that he possessed the talent of successful and imposing charlatantry in the most eminent degree. Having had the good fortune to cure Frobenius, the celebrated typographer, at Basil, of a fit of the gout, (although it appears more than probable that he thus actually hastened his death by producing an apoplectic attack, which soon after terminated his existence) he succeeded in ingratiating himself with the learned and illustrious Erasmus, who had been the particular friend of Frobenius, and who consulted Paracelsus about his own health.

In the course of his travels he had succeeded in accumulating a considerable fund of chemical knowledge, which he converted, however, to the idle purpose of endeavouring to discover the philosopher's stone. Yet, idle as this pursuit appears, and that of the visionary elixir vitæ, which had deluded so many men of far more solid and useful abilities than Paracelsus—such endeavours were not altogether barren in their results, nor unprofitable either to chemical or medicinal science, since they not only prepared the way for those brilliant and important discoveries which have pre-eminently distinguished our own times, but led to the introduction of many valuable chemical preparations into medical practice. Paracelsus, by the bold and enterprising manner in which he administered antimony, mercury, and opium, often succeeded in effecting cures which had baffled the more cautious practice of experienced practitioners; and, as his registers of cases recorded none but those which were successful, while the more numerous catalogue of failures was consigned to oblivion, he succeeded in creating a high opinion of his practical skill, as well as of his profound erudition.

Thus his reputation at last attained to such a height, that the magistrates of Basil were induced to engage him as Professor of Medicine in that city, at a large salary; and, in consequence of this appointment, he gave, during the years 1527 and 1528, daily lectures, which at first, from their novelty and the blubless effrontery of the lecturer, attracted a numerous audience. In process of time, however, his egotism, his vanity, and his

excessive ignorance, which could not long be concealed, disgusted all the better informed among his pupils, and the number gradually diminished till, at last, not one could be found to attend him. As a proof of his ignorance and his arrogance, he commenced his very first lecture by publicly consigning to the flames the works of Galen and Avicenna, impudently declaring that his cap contained more knowledge than all the physicians, and the hair of his beard more experience than all the universities in the world. "Greeks, Romans, French, and Italians," he exclaimed, "you Avicenna, you Galen, you Rhazes, you Mesue; you Doctors of Paris, of Montpellier, of Swabia, of Misnia, of Cologne, of Vienna, and all you throughout the countries bathed by the Danube and the Rhine; and you who dwell in the islands of the sea, Athenian, Greek, Arab, and Jew! you shall all follow and obey me. I am your king; to me belongs the sceptre of physic." Such was the disgusting and vaunting manner in which he was in the habit of addressing those who had the patience to attend, and the good-nature to bear with him. His lectures were delivered sometimes in bad Latin, but more frequently in German; and, in place of conveying wholesome instruction, were filled up with groundless diatribes against his predecessors and his contemporaries, mixed with the most hyperbolical praises of himself, and the most sickening details of his merits, his erudition, and his success. Utterly unacquainted with either anatomy or rational physiology, and equally destitute of classical literature, he was unable to ap-

preciate the merits, or explain the defects of the ancients; hence he prudently confined his abuse to general terms, and cautiously avoided descending to particulars. His medical skill, of which he vaunted so much and so idly, consisted merely in the exhibition of potent remedies with that empirical boldness which scoffs at caution, and, for once that it accidentally succeeds, proves fatally destructive in hundreds of instances, which are carefully veiled from the knowledge of the world. As his theories were without system, so was his practice without judgment. His doctrines were a strange jumble of Magic and Astrology, of Geomancy and of Medicine, as destitute of method as they were for the most part of rationality; and an attempt at their analysis would be as unavailing as it would be unprofitable. With such magnificent pretensions as Paracelsus laid claim to, and so little of solidity to support them; with such a plentiful parade of promises, and so barren a harvest of performances; with so much egotism on the one hand, and so much arrogance on the other, it would have been surprising had he been able to maintain himself in that honourable post to which impudence, and not talent, had elevated him; or to continue long to profane that chair, which Bauhin had dignified by his learning, and embellished by his virtues. In 1528 he suddenly threw up his professorship in consequence of a disagreement respecting fees, and abruptly quitted Basil to embrace once more a life of wandering, improvidence, and intemperance: maintaining a kind of meteoric reputation by the occasional bril-

liancy of a few surprising cures, which dazzled the minds of men, and blinded them to those innumerable instances of failure, which ought to have taught them the madness of confiding in a practice founded upon no rational principle, and conducted upon no consistent plan.

At length, however, he furnished in his own person a practical illustration of the vanity of his pretensions, and the worthlessness of his boasts; falling a victim to an attack of fever with which he was assailed, and dying at Saltzburg in 1514, in the 48th year of his age, although possessing the secret of that invaluable elixir, by means of which he pretended to be able to renovate age, and procrastinate death to an almost indefinite period. Opium seems to have been his favourite remedy; one which, used with discretion, is capable of administering much relief, and doing extensive good; but which, in the hands of empiricism or inexperience, becomes an instrument of widely-spreading destruction, mocking the sufferer with fallacious ease, and concealing the fire which it thus renders doubly fatal. Antimonials and mercurials were likewise among the active engines with which he dealt out death to the many, and salvation to the few: and there is little doubt, that posterity owes to his chimerical pursuit of the philosopher's stone, and the elixir vitæ, the discovery of many of those valuable preparations of these metals, which at present enrich our pharmacopœias. The merit has been awarded to Paracelsus, by some, of having been the first to employ mercury in the cure of Syphilis; but he

who will refer to the commencement of the present chapter will find, either that this merit rests upon the same apocryphal grounds with his other pretensions, or should be shared with Almenar, with Vigo, with Berengarius, and with Lobera. He may, indeed, have employed this active and efficacious remedy with a temerity which would have alarmed the regular practitioner, and a success which was the result of fortune rather than of judgment; but, when we recollect that Paracelsus could not have exceeded his nineteenth year when Almenar wrote, we must pause for farther evidence before we pluck the laurel from the brows of another to decorate *his* brazen image.

Adam Bodenstein, who had been a pupil and one of the most strenuous defenders of Paracelsus, gave a fatal proof of his misplaced confidence in the doctrines and prescriptions of his master; for, learning that the town of Basil was visited by a most destructive fever, he repaired thither in 1577, armed with an invincible *Theriaca*, prepared according to a formula obtained from his master, certain of vanquishing the complaint with this omnipotent weapon, and earning the gratitude of the inhabitants by his services; instead, however, of conquering the complaint, he took the infection himself soon after his arrival, and fell a victim to its violence, with his invaluable *Theriaca* in his possession—thus furnishing a striking example of the folly of blind credulity and over-weening vanity.

About this time, several improvements were made in the practice of surgery, and especially in the operation of lithotomy, in which the descend-

ants of Germain Colot, (who has been already spoken of as having the merit of rescuing so important an operation from the hands of ignorant pretenders,) continued to maintain the celebrity acquired by their ancestor, and to sustain with applause the high rank which they held among the successful performers of this delicate operation. Laurence Colot, in particular, enjoyed the greatest reputation for skill and dexterity, having had the advantage of instruction from Germain.

He employed what is called the greater apparatus, which was invented, about the year 1525, by John de Romanis, a physician of Cremona, who communicated his invention, and the manner of using it to Marianus Sanctus, author of a work on lithotomy, published at Venice in 1535, under the title of "*Libellus aureus de lapide à vesica per incisionem extrahendo*," in which he described the instrument and its use. Octavian de Villa, a surgeon, at Rome, who had been a pupil of Marianus, learned the use of the apparatus from him, and is supposed to have been the person by whom it was communicated to Laurence Colot, who managed it with great dexterity, and avoided those inconveniencies which have occasioned Romanis's instrument to be superseded by one of far less complex construction, and less difficult application, invented by a French surgeon, and greatly improved upon since by our countryman, Cheselden. The chief inconvenience attending the use of Romanis's apparatus was that of unavoidably cutting through the neck of the bladder and urethra, at the risk of producing fistula; notwithstanding which, Colot acquired

such reputation by his dexterity in using this apparatus, that he was sent for to attend patients in distant countries; and the importance of confining his practice within the limits of France, or rather of keeping him in constant attendance upon the court, became so apparent, that Henry II. appointed him, in 1550, his surgeon in ordinary, with a pension sufficient to compensate for the loss arising from giving up his foreign practice; and he was made, besides, lithotomist to the royal family, a post held after his death by three of his descendants in succession.

The year 1530 was distinguished by the appearance of the celebrated poem on Syphilis, written by that eminent physician and accomplished scholar, Hieronymus Fracastorius,* entitled "*Syphilidis, sive de Morbo Gallico*," first published in this year at Verona: a work of too much intrinsic merit, whether we regard the

* Hieronymus Fracastorius was born in 1483, at Verona, where he practised physic: such was the ardour with which he applied, and the facility with which he advanced in the acquisition of knowledge, that he became distinguished while yet a youth for the extent of his attainments and the precocity of his understanding. These procured for him universal estimation, and obtained the entire confidence of the Venetian general, whom he attended as physician in many campaigns, and only parted from him on his death in 1515, when he returned to Verona.

It was the representations of Fracastorius which occasioned the adjournment of the celebrated Council of Trent from that town, to Bologna, in consequence of the prevalence of a dangerous pestilence at the former place.

He retired in his latter days to a country seat he had near Venice, where he died of apoplexy on the 6th of August 1553, at the age of 71. He was the author of several other medical works besides his celebrated poem upon Syphilis.

chaste and classical elegance of its language, worthy of the best days of imperial Rome, the melliflence of its versification, hardly surpassed even by the Bard of Mantua himself, the vividness and correctness of its imagery, or the importance of its precepts—to be passed without notice in a history of the progress of Medical improvement. It was admired from the first moment of its appearance by the learned and distinguished Cardinal Bembo, by Sannizarius the classic author of the "*Prædium rusticum*," and indeed by all who could be esteemed competent judges,—by whom it was compared with the *Georgics* of Virgil. Fracastorius dedicated his Poem, which has gone through repeated editions, and been translated into French and Italian, to Cardinal Bembo, who was his particular friend, and with whom, as well as with most of the learned men of his age, he maintained a literary correspondence.

In this year Otho Brunsfels, one of the restorers and improvers of Botany, gave a valuable contribution to Medical History in his "*Catulus illustrum medicorum*," which was followed two years after (1532) by his "*Theses seu Communes Loci totius medicinæ: etiam de usu Pharmacorum*," published at Strasburgh, and containing much valuable information: for, in addition to his profound knowledge of botany, his reputation for Medical skill was such as to occasion the following complimentary distich:—

"Te nato, defuncta fere Medicina revixit
"Ipsum vindex nominis unus eras."

In 1534, John Francis Brancaleo, a physician of Naples, published at Rome a work on Baths which he entitled "*De Balneis, quam salubria sint, cum ad sanitatem tuendam, tum ad morbos curandos. Dialogus adversus neotericos*—" in which he strongly advocates the cause of bathing, recommending it as one of the best preservatives as well as restorers of health; defending the practice against the objections of his contemporaries upon the authority of Galen, and advising its adoption from his own experience: he strongly reprobates, however, the abuse of purgatives, which was a prevailing error in the practice of his day.

About this time also, Antonio Musa Brassavola,* a man of distinguished talents, and a most diligent investigator of the properties of Medicines both simple and compound, published his first work "*Examen omnium simplicium medicamentorum, quorum usus in publicis officinis est*," in folio, at Rome. In this publication, from the minute attention he had paid to the subject, he was able to rectify many of the errors of his teachers. He inquires into the qualities of several poisonous drugs, and their effects on animals. He mentions the antheumatic properties of some of the preparations of Mercury, and the safety of their cautious ex-

* Brassavola studied at Ferrara under Leoncini and Manardi, two distinguished professors, but completed his studies at Paris. On his return to Ferrara, he was made physician to Hercules II. Duke of Ferrara, to whose daughter he inscribed one of his works. He died, according to Carrere, in 1554.

hibition not only to adults, but even to the tenderest infants. He speaks of having in two instances seen a cruciform cartilage in the hearts of stags. He gives a preference to the Calabrian over the Syrian Manna; and shews that calcined mercury, although then fallen into disuse, had been formerly employed in the cure of Syphilis. Freind informs us that he was the first to employ guaiacum in Syphilitic cases, in the year 1525; but this appears to be a mistake, since Freind himself expressly states but a few pages before, that the use of guaiacum was first introduced by Gonzalo Ferrand from the West Indies, about the year 1494, and spoken of by Schmaus in the work which he published on Syphilis in 1518, seven years earlier than the date he assigns to the first use of it by Brassavola.*

Brassavola again published, in 1555, "*De medi-*

* Compare—"Guaiacum primus ad nos attulit Gonzalus Ferrandus; qui, cum per obsidionem Neapolis Luem contraxisset, neque in Italia curationem experiret, in Occidentalem Indiam navigavit, eo consilio ut perquiret, quæ ratione se eorum gentium populi tractarent in affectu, quem vulgarem illic ac non minus frequentem sciret esse quam Variolas inter Europeos." *Fr. Hist. Med.* p. 325. —the following, "opus, in quo omnia Leoniceo dicta reperantur, vulgavit Leonardus Schmaus; neque illic novum quæpiam invenio, præter mentionem Guaiaci, in *Europam paullo ante allati*," *ib.*—and the passage respecting Brassavola at page 328 where he says, through some strange forgetfulness, when speaking of Brassavola's large work on Syphilis, "Sed utcumque longus sit, nullum recens præceptum tradit, vel de cognoscendis symptomatis, vel de instituenda curatione. Scripsit is AD. 1551, priusque Ferraræ Guaiaco usus est anno 1525." Unless this last passage be taken in a limited sense, as implying merely that he was the first to employ this remedy at Ferrara, we shall find some difficulty in reconciling the contradiction.

camentis, tam simplicibus quam compositis, quæ unicuique humori sunt propria," replete with valuable observations, chiefly founded upon his own experience, respecting the effects of different purgatives; and he speaks in it of having cured a maniacal case in a person of rank, by the exhibition of black hellebore, a remedy which had long fallen into complete disuse. He had previously published at Leyden in 8vo. in the year 1540, "*Examen omnium Sympliciorum quorum publicus usus est,*" written, like other works of his, in the form of a dialogue with an Apothecary, who commences by giving a whimsical account of the manner in which he treated his wife - stating that as soon as they had retired to their chamber, he threw down a pair of *inexpressibles* on the floor, and, giving his wife a stick similar to one he kept for himself, insisted on her contending with him, as to who should have the privilege of wearing them; and that, having gained the victory, he had resolutely maintained his authority ever after. The Doctor, after reproving his guest the Apothecary, concludes with giving him some judicious advice as to his future conduct.

After these works he published in succession, an Examination into the composition of Electuaries, Pills, Lohoes, Troches, and other preparations,—Commentaries on parts of the works of Hippocrates,—A complete list of Galen's works,—and a Treatise on Syphilis, on the use of the China root, Guaiacum, &c. &c. containing a number of curious and valuable remarks: and among the rest he notices the fact of running mercury being occa-

sionally found in the rotten bones of persons who had died of Syphilis, after having perhaps suffered too much both from the ravages of the complaint, and the clumsy practice of the physicians.*

Contemporary with Brassavola, there flourished Nicholas Massa, a native of Venice, who distinguished himself both as an able practitioner and a diligent anatomist. His work on Syphilis is one of the best of the age, founded almost wholly upon his own experience, and evincing a thorough acquaintance with his subject. His description of the symptoms which accompany this dreadful complaint, and mark it distinct from every other, is complete; but it should be remembered that the whole of the morbid train which he describes is not to be expected to occur in the same individual. The following brief enumeration of the symptoms he details may serve to give some idea of the appearance assumed by the complaint at that period:—"Hard pustules on the head and forehead: pains in the head and limbs, especially in the thighs, which increase at night; in one subject whom he dissected in 1524, he found a congestion of white pus among the muscles of the thigh; abscesses both in the thighs, and other parts; ulcers, which when seated on the penis are an infallible proof of the presence of Syphilis; nodes, painful tubercles; tumors on the joints; cracks, and scales on the hands and feet;

* "Non semel in sepulchris argentum vivum in mortuorum caputibus invenit."

a crust over the whole body as in leprosy; relaxation of the uvula, ulcers in the mouth, fauces, and epiglottis, which do not proceed to suppuration; erosion of the cartilages of the larynx; caries of the bones; buboes, which, when brought to suppurate, remove the complaint; and a falling off of the hair of the head and the beard." His mention of this last symptom fixes the period at which he wrote, which could not have been earlier than 1536, since we learn from Fallopius, that the loss of the hair was not observed to be a symptom of the complaint before that date, when the disorder had been known for about forty years. In this catalogue of symptoms, exhibiting, it must be confessed, a sufficiently frightful picture of this loathsome complaint, one only, which is now one of the commonest attendants upon Syphilis, is wanting, namely gonorrhœa, which, as Fallopius, upon whose information we may rely, also acquaints us, did not appear during the first forty years after its introduction,—Fernelius being the first to notice it. Had such a symptom fallen under the notice of so attentive an observer as Massa, we may feel assured he would not have omitted it. His account of the plan of treatment to be pursued in the cure of Syphilis, is no less distinguished for its judgment, than his detail of symptoms for its accuracy. This novel complaint requires, he observed, to be assailed with novel remedies; and, if not the first, he was at least among the earliest to discover and point them out. Although he dwells at considerable length on the praise of guaiacum,

he regards salivation as the only certain and effectual remedy, and conceives it may be employed with the most perfect safety both in cases of young children, and pregnant women. He gives the formulæ of many different ointments for this purpose, the basis of every one of which consists of lard and mercury. He also lays down rules for the proper preparation of the body, and for guarding against those inconveniencies which may occur either during, or after recovery. He remarks that the salivary discharge passes off occasionally not only by the gums, but also by stool, by urine, and by perspiration, and this frequently with the happiest results. He directs that the mercurial frictions should be continued for twelve, fifteen, thirty, or even thirty-seven days,* according to circumstances, either in uninterrupted succession, or with such occasional intermissions as may appear most advisable, but without regarding the languor or exhaustion of the patient. This rough and severe kind of practice is fully sufficient to account for the very untoward symptoms frequent in those days, and the numberless instances in which, from the supersaturation of the system with mercury, anatomists discovered it in a metallic and fluid state in the bones of those who had been so treated.†

Massa likewise treats of mercurial fumigations,

* Nic. Massa de Morbo Gallico. Tractatus iv. chap. 2.

† "Argentum vivum accepti ex osse cujusdam corrupto, quem perunctum ab empiricis, plus decies ferebant non semel emanavisse" Anton. Gall. in libro de Ligno Sancto non permiscendo. See also the note upon Brassavola.

the efficiency of which he says he witnessed more than once. In employing this plan of cure, he adopts the same cautions as those given by Lobera, who first recommended the practice. He says he had frequently known fumigation to succeed in effecting a cure, in cases which had baffled the efforts of friction. Upon the whole Massa is the first writer who has treated the subject with the practical skill and originality of an observer. But he was not less distinguished for his skill in practice, than for his proficiency in Anatomy, which may not inaptly be termed the elder sister of practice. His "*Liber introductorius Anatomia,*" which was published in 4to. at Venice in 1536, contains many valuable observations, especially on the subject of the genital and urinary organs. He also published a collection of medical correspondence, which was printed at Venice in 4to. in 1542, and reprinted at the same place in 4to. in 1550 and 1558: it was entitled "*Epistolæ Medicinales.*"

Fernelius,* who was a contemporary with

* John Fernel, or Fernelius, was early distinguished both for his talents and application, and signalized himself so much among his fellow students in philosophy, that he was requested to undertake the professorship of dialects in his college, immediately after attaining his master's degree. Having applied himself to the study of Medicine, he took the degree of Bachelor in that faculty at Paris, in 1524, and Doctor in 1530, when he was 33 years of age. His passion for mathematics had nearly proved ruinous to his family, upon which, by the advice of his father in law, he applied himself to practice, wherein he rapidly acquired both fame and fortune. In 1542 he was made physician to the Dauphin, Henry, in which office he continued after that Prince mounted the throne, and accompanied him in all his campaigns, during one of which he composed his work on fevers, published

Massa, (having been born, as we learn from the best authorities, at Clermont, in the year 1497) and was distinguished for the boldness with which he dared to question the dogmas of Galen, almost regarded as sacred in those days,—in addition to a large collection of valuable works both on Medicine and Mathematics which he published during his life, left a valuable treatise on Syphilis, edited at Antwerp in 1579, twenty-one years after his death, by Gisselin, a physician of Bruges, under the title of "*De Luis venerea curatione perfectissima liber.*" He there notices some changes which this complaint had undergone in the appearance of its symptoms: first in the increased efflorescence of pustules, accompanied by a diminution of pain: a little after, on the pustules almost totally disappearing, the pains became most excruciating and were accompanied with nodes; although Fracastorius in his

afterwards at Frankfort under the title of "*Febrium curandarum methodus generalis,*" which was nearly finished when the King retook Calais from the English on the 1st of January, 1558. On his return from this expedition, he accompanied the court to Fontenbleau, where his wife died of fever. This affected him so much that he was attacked himself with the same fever twelve days after, and died on the 26th of April, 1558, at the age of sixty-two. His other medical works were "*De naturali parte Medicinæ, libri septem.*" Paris, 1532. "*De vacuandi ratione, liber.*" ibid. 1543. "*De abditis rerum causis, libri duo.*" ibid. 1545—a work which went through nearly thirty editions. "*Medicina ad Henricum II. Regem.*" 1554—still more frequently reprinted, "*Therapeutices universalis, seu morandi rationis libri septem.*" Lugd. 1659, and "*Consiliorum Medicinalium liber.*" Paris, 1582. As he transferred many things from the Arabians into the chaste latinity of his own works, it was said of him that "*Fœces Arabum melle Latinitatis condidit.*"

work "*De contagionibus, et contagiosis morbis, et eorum curatione*," says that the nodes were most numerous, and the pustules fewer at the beginning. At the time, however, of his composing that work, which was shortly before his own death in 1553, the reverse had taken place, while the severity of the pains was increased; yet, in the next six years, the nodes again increased in number, while the pustula eruption diminished and the pains almost wholly disappeared. However at variance these two accounts may appear, both it is probable are strictly conformable to truth; the discrepancies arising, not only from the difference of the countries, climate, and habits of the people where the observers severally resided, but also from a variety of other causes. For it is admitted by all, that the malignity of the complaint was greater in those days than at any later period; and that it underwent great changes subsequently to the description given by Leoniceus. In the succeeding years, neither the pains nor the pustules were constant symptoms; nor, when these last occurred, did they always commence, as at first, on the pudenda. About the year 1530, as Fernelius attests, great changes took place in the symptoms, and several new ones appeared, as the loss of the hair, teeth, and nails, blindness, and gonorrhœa.

Before we finally dismiss the subject of Syphilis, it may not be amiss to remark, how little system, appears to have prevailed in the methods of treatment adopted by the different practitioners in those days. In the exhibition of guaiacum at the commencement, a most rigid course was adopted and

followed up with the most careful exactness; the patient being shut up, as it were in a cavern, to elicit perspiration, by which means, as Fallopius observes, both the man and his bones were macerated: and Fracastorius in his poem notices the same fact more metaphorically. Experiments were next successfully made, by some practitioners of judgment, on the use of mercury, both in the shape of friction and fumigation. This plan however encountered much opposition, especially from Fernelius; and even Fallopius considered the cure accomplished by mercury to be one upon which dependance could not be placed; and although he lays down the most admirable rules for conducting salivation, he advises that no one should attempt it, till after an ineffectual trial of sarsaparilla and guinicum, which he considered the most certain remedies, if not specifics in this complaint. Indeed he speaks with so little of his usual discrimination on the subject, that he even ascribes the caries of the bones to mercurial friction, without which he asserts that it never took place. Fracastorius, who wrote after, and frequently copied from him, observes that a cure was occasionally effected by mercurial unguents; but that, as this was a violent and hazardous method, it was prudently laid aside; although he acknowledges that, on the complaint gaining ground two years after, it was had recourse to again.

In 1539, a work on the disorders to which children are subject,* was published by Michael An-

* *Labelius de morbis puerorum*, 8vo. Venetiis, 1539.

gelo Biondi or Blondus, who had some years before given an Epitome* of some of the books of Hippocrates, and in 1542 published a surgical work† on the quickest mode of healing wounds, and on the use of guaiacum in the cure of Syphilis. For wounds recently made with a cutting instrument, he recommends the application of simple water as a most useful remedy. With respect to Syphilis he denied that it was a new complaint imported from the West Indies by Columbus, but believed it to have been known to Hippocrates, and others of the ancient physicians, and described in their works. He had employed the lignum sanctum‡, but without success, the complaint returning with increased violence after its discontinuance. He relied upon mercury chiefly for effecting a radical cure, but omits to explain the manner in which he employed it. Biondi was a native of Venice, where he was born in 1497, and, after studying under Augustin Niphus, a celebrated teacher, settled in practice at Naples.

Prospero Borganucci, an Italian physician of considerable eminence, although he describes, in his "*De morbo Gallico Methodus*," the mode of employing mercury in friction, gives a preference to guaiacum, from an erroneous idea that mercury destroyed the powers of procreation. He

* Epitome ex libris Hippocratis, de nova et prisca arte medendi, deque diabus decretorum. 8vo. Romæ, 1528—1545.

† De partibus ictu sectis citissime sanandis, et medicamento aque nuper invento. In plurimorum opinionem de origine morbi Gallici, deque Ligni Indici aucupii proprietate. 8vo. Venet. 1542.

‡ Guaiacum officinale.

makes no mention of sarsaparilla, although well known at the period in which he wrote.

Respecting fumigation, which required greater skill in its management, it is not surprising that opinions should be yet more divided and uncertain. From all this the unavoidable conclusion is, that we cannot be too cautious in assenting to the opinions of medical writers upon almost any disputed point of practice; each being influenced more perhaps by attachment to some favourite theory, than a strict regard to veracity.

About this time the celebrated Cardan published his first work entitled "*De malo recentiorum Medicorum medendi usu*," Venetiis 1536, in which he severely censures the wretched practice of the majority of his contemporaries: and, a few years after, he followed this work by another entitled "*Contradicentium medicorum, libri duo*," published at Lyons in 1548, in which he exposes the contradictory and inconsistent accounts given of the same disease, both by ancient and modern writers.

Surgery in France at this period possessed her brightest gem in Ambrose Paré, a Hugonot, who was born at Laval in 1509, and commenced his career early in life as a military surgeon, in which capacity he rose, finally, to the highest distinction, having been made surgeon in ordinary to four kings of France in succession. Following the dictates of his genius, he made authority yield to observation, or endeavoured to reconcile them; whereupon envy, the unfailing attendant upon talent, represented his discoveries as crimes. He was the re-

storer, if not the inventor of the art of tying the blood vessels, which he effected by drawing them out naked, and passing a ligature over them. He improved, greatly, the method of treating gun shot wounds, by introducing soothing applications in place of the stimulant ones customary with his contemporaries. His first work "*Manière de traiter les playes faites par harquebuses, flèches, &c.*" appeared at Paris in 1545; and in 1561 he published the first collection of all his works, consisting of twenty-six treatises on almost every branch of Surgery, in folio. During the dreadful massacre of St. Bartholomew's, he owed his escape to his talents; which Charles IX prized so highly that he personally interfered for his protection. "Il " n'en voulut jamais sauver aucun" (says Brantôme) si non maistre Ambrose Paré, son premier " chirurgien, et le premier de la chrétieneté; et " l'envoya querir et venir le soir dans sa chambre " et garderobe, lui commandant de n'en bouger; et " disait qu'il n'était raisonnable qu'un qui pouvait " servir à tout un petit monde, feust ainsi massacré." Paré died in 1590, at the age of 81.

Rousset, a contemporary of Paré, was a strenuous advocate for the Cæsarean operation, which Paré, who had greatly improved the practice of midwifery, thought allowable only in cases where the mother died undelivered, conceiving it too dangerous for trial on a living female. Rousset, however, having collected eight cases, published in 1551—" *Traité " nouveau de l'Hysteromotokie, ou Enfantement " Césarien, qui est l'extraction de l'enfant par incision latérale du ventre et de la matrice de la*

*" femme grosse, ne pouvant autrement accoucher ;
" et ce sans préjudicier à la vie de l'une et de
" l'autre, ni empêcher la fécondité naturelle
" après."*

Among the bold empirics of the sixteenth century, Bovius deservedly claims a place upon even higher grounds than Paracelsus; being not only descended from an ancient and noble family in Italy, but having both learning and talents to support his pretensions. This extraordinary man, who was perhaps more romantic than knavish, and more insane than either, assumed the fanciful name of Zephirielelem, from a tutelar spirit, which, as he fancied or pretended, watched over, and guarded him. Though his learning was universal, his favourite pursuits were law, medicine and chemistry, as being, we may presume from their mysterious nature, best suited to his visionary turn of disposition. He was the determined foe of all the regular practitioners, and boasted largely of the success of his own practice. Among other absurdities he contrived an elaborate and, as he called it, concentrated preparation of mercury and gold, dissolved in a kind of aqua regia, or nitro-muriatic acid, which he termed his *Hercules*, and pretended to cure with it malignant fevers, syphilis, and plague itself, in all their worst forms. He found fault with the ordinary method of making the decoction of the woods, as attended with the dissipation of all their volatile and active constituents. For the cure of Epilepsy he employed a preparation of ammonia; and, for the removal of amenorrhœa, he gave hellebore. He boasts of

having expelled from one of his patients a tape worm, measuring, as he assures us, fifty yards. Being an astrologer as well as physician, he condemned bleeding, except under certain favourable aspects of the heavens. He pretended to perform the most miraculous cures with his potable gold; and turned Capivaccius into the most complete ridicule, for having given a patient over as incurable, whom he had afterwards restored to health. He was strongly attached to the study of alchemy, from the hope no doubt of discovering those two great desiderata which led the wisest men astray for so many ages, the elixir vite, and the philosopher's stone, which was to convert every baser metal to gold. He admitted that he was indebted to the works of Arnaud de Villeneuve for much of his knowledge, especially in chemistry. He boasts of having cured above seven thousand patients; but Claudius Gellus, who undertook to confute him in a small tract since subjoined to his works, not only shews that he had no real pretensions to the character of a physician, but that he was even very little consulted. His chemical knowledge, however, enabled him to detect the true cause of a complaint affecting the inmates of a certain monastery, which had long baffled discovery, and which proceeded, as Bovius clearly pointed out, from the use of ill-tinned copper vessels in their kitchen. This is a frequent source of illness in families, and often exists for a length of time without being suspected; and, as the tinning of the copper is not always perfect, and perpetually liable to abrasion,

vessels of this description should be proscribed by all who value health.

In 1556 the celebrated Dr. John Caius, one of the brightest ornaments of his age and country, published his account of the fatally destructive epidemic of which an account has been already given in the preceding chapter under the name of "*Sudor Anglicanus*" or the Sweating Sickness; but which Dr. Caius, with nicer discernment, denominated the "*Ephemera Britannica*,"* and described with such minute and scientific accuracy, that his work, however defective in its practical parts, has been repeatedly reprinted for the sake of its descriptive portion. The author of this work was born at Norwich on the 5th of Oct. 1510, and, having received his school education in his native town, was admitted a member of Gonville Hall, Cambridge, on the 12th of Sept. 1529, and elected a fellow of that Society, four years after, when he had only attained his 23d year. Anxious to extend his sphere of knowledge, he determined upon farther improving himself by travel, and by passing some time at the University of Padua, which was at that time in high repute throughout Europe, especially for the study of Medicine. Here he

* Besides this work and various translations from the Greek, Dr. Caius published, in 1570, a treatise "*De canibus Britannicis*" which Pennant has inserted entire in his *British Zoology*; to this were added "*Historia rariorum animalium*," originally printed in Gesner's collection; also "*De libris propriis*," and "*De Antiquitate Academiæ Cantabrigiæ*," and it would appear from the numerous unpublished MSS. which he left behind, that he had projected a variety of other works.

placed himself under the tuition of the celebrated John Baptista Montanus, who had that distinguished Anatomist Vesalius for his pupil at the same time. Here Caius manifested the extent of the progress which he made both in classical learning, and in Anatomy and Medicine, by his various translations and commentaries upon different parts of Hippocrates and Galen, Scribonius Largus, and other ancient writers—correcting the errors of the transcribers, and explaining the more difficult passages. With a view to hear other professors, and examine rare MSS., he proceeded from Padua to visit most of the principal cities in Italy, and passed some time at Bologna, where he took the degree of Doctor of Medicine in 1541; after which he returned to Padua, and, in conjunction with Realduo Columbus, read a course of lectures on the Greek text of Aristotle. He returned to England in 1544, and, after reading anatomical lectures for some time to the Corporation of Surgeons in London, went to practice at Shrewsbury, where he was resident in the year 1551, when the Swenting Sickness returned for the fifth time, and was particularly destructive in that district, as has been already observed. It was this visitation that formed the subject of his book, in which his description represents it as resembling the account we have of the memorable plague at Athens. In 1547 Caius was admitted a fellow of the College of Physicians, and appointed in succession Physician to Edward VI. and Queens Mary and Elizabeth. He was a strenuous friend to the College of Physicians, of which he was elected President, and continued in

that office for seven years, in the course of which he revised their laws, appointed insignia for the president, and, in order to promote the study of Anatomy, which he felt to be the corner stone of Medicine and Surgery, obtained an annual grant of the bodies of criminals for dissection under the direction of the College. He also drew up the annals of the College in Latin, together with a Journal of their proceedings, which he left with them. Feeling a strong attachment for the spot of his early education, and being doubtless ambitious to connect his name indissolubly with learning in England, he obtained permission from Queen Mary to erect his old Hall into a College, with an addition to its foundation of three fellows and twenty scholars. Besides this, he added an entirely new quadrangle to the original Hall, and erected three gates at a total cost of £1,831. In consequence of this munificence the new College was named, after its Benefactors and Founders, Caius and Gonville College, and Caius himself elected the first Master, which office he retained till shortly before his death, when he resigned it to Dr. Legge; continuing, however, a resident in the rank of a fellow commoner. During the illness which terminated his active and useful life, he was supported entirely by woman's milk, till he at length closed his eyes in death at the age of 63, in the year 1578—his tomb-stone bearing the simple, emphatic, yet unpretending inscription—"Fui Caius."

While the science of Medicine was thus making considerable progress towards improvement, and

gradually emancipating itself from those shackles in which ignorance and a blind attachment to the dogmata and even to the most palpable errors of the ancients, had too long held it enthralled; the twin science of Surgery was not prosecuted with less success, nor distinguished by a smaller share of improvement. In 1560 an excellent Manual on the treatment of gun-shot wounds was published at Venice in 8vo. under the title of "*De curandis vulneribus sclopettorum*," by Leonard Botallus, an eminent physician and surgeon of this period, who had been a pupil of the distinguished Fallopius in Anatomy, and studied surgery practically under his brother in the camp of the Prince of Orange, whom he cured of a wound in which the carotid artery had been injured. He took the degree of Doctor of Medicine at Padua. Botallus' Manual went through a considerable number of editions, and long maintained the reputation of being the best treatise on the subject. Five years after, Botallus published another work * in which he lays down precise rules for the conduct of the Physician and Apothecary in their attendance upon the sick; a work containing some good practical observations, and useful suggestions. But the work by which he is best known, and which produced a most important revolution in practice, was his treatise on Bleeding; † a custom which, although

* "*Commentarii duo, alter de medici, alter de aegroti munere.*" Lyons, 8vo. 1565.

† "*De curatione per sanguinis missionem, de incidenda vena, cutis scarificanda, et hirudinum affingendarum modo.*" 8vo. Antwerp, 1583.

now actually fallen into disuse, in his day was much too sparingly employed. Attempts, indeed, were made, upon almost every possible occasion, to supersede it by the exhibition of purgatives, and, where practitioners found themselves compelled to have recourse to it, they either took an insufficient quantity of blood at one operation, or neglected to repeat it as often or as fully as the urgency of the case required. The evils of this mode of proceeding soon became obvious to the experienced eye of Botallus, who, by pursuing a very different method was more uniformly successful than any of his contemporaries, and was thence induced to make his plan known for the general benefit. He mentions having employed venesection with the most decided advantage in a multitude of instances, both in Diarrhœa, Dysentery, Fever, Plague—and even Pregnancy, in which it was all but actually prohibited.

Encouraged by the signal success which crowned his practice, Botallus indulged himself in a bolder use of his lancet, and has left cases on record in which he carried the operation even beyond the sixteenth repetition, not only without inconvenience, but with the most marked advantage. He even advised bleeding in quartans, and in dropsies; and there can indeed be little doubt that in the inflammatory stage of almost any disorder, the judicious abstraction of a portion of the vital stream may be productive of the most decided benefit, and even arrest at once the progress of the complaint. On the subject of venesection, however, more will be said when we come to the

improvements made in practice by our illustrious countryman, Cullen. Such was the reputation which Botallus deservedly acquired by this successful innovation in the established practice, that he rapidly made proselytes to his plan, who, rushing with all the zealous indiscretion of new converts into the opposite extreme, carried the practice of depletion, in France and Spain especially, to such imprudent and often dangerous excess, as to bring it at length into considerable disrepute. This eventually awakened the keen ridicule of Le Sage, whose display of the absurdity, in the character of Doctor Sangrado, in his facetious history of the Adventures of Gil Blas, succeeded in bringing the practice within its legitimate bounds, and preventing its total disgrace through the indiscretion of its friends.*

In the same year with Botallus' Treatise on gun-shot wounds appeared a Manual of Surgery † by Anthony Chaumette, a native of Puy on the banks of the Loire, where he practiced his profession with great reputation. To this work was subjoined a plan of cure in cases of Syphilis, consisting in mercurial frictions, by which he says, contrary to the opinion of Fernelius, Fal-

* Botallus, by way of improving upon the ancient plan of amputation, which appeared to him too tedious, proposed substituting an instrument constructed on the principle of the guillotine, which would undoubtedly have possessed the recommendation of celerity, but unfortunately splintered and injured the bone so much, that it soon fell into disuse.

† *Enchyridion Chirurgicum externorum morborum remedia, communiversalia, tum particularia, brevissime complexus. Quibus novis veneris curandi methodus probatissima accessit.* Paris, 1560.

lopius, and others, a cure may be accomplished after the failure of all other means. Such was the popularity of this Manual, that, in about thirty years after its first publication, editions had appeared in almost every country of Europe.

In the year 1580, Horace Augenio, of Monte Sancto, in Ancona, who filled a medical professorship at Rome, in a work* published at Venice, recommended the use of millepedes in Calculus; having, he says, seen a boy cured by them, after having been condemned to undergo an operation. He condemned the practice of injecting the bladder, as frequently injurious. He exhibited water in which mercury had been boiled, as an anthelmintic, and employed narcotics, as he says, with advantage in Diabetes.

In a work† published by Marsilius Cagnatus, in 1581, and consisting chiefly of critical observations on the works of the ancients, we find a singular case recorded as having fallen under the author's personal observation, of the bones of a human fetus voided by the anus, either in consequence of extra-uterine conception, or having worked their way out of the uterus into the intestines. Marsilius also maintained in another work,‡ in opposition to the opinion of some anatomists, that the *ossa pubis* do not separate

* *Epistolæ et Consultationes Medicæ*. Fol. Venetiis, 1580.

† *Variarum observationum libri duo, cum disputatione de ordine ciborum, libri quatuor*. Romæ, 1591. 8vo.

‡ *De morte, causa partus*.

in parturition: while in another work,* on the subject of two epidemics which prevailed in Rome during the years 1591 and 1593, he labours to prove, contrary to the universally received opinion, and, indeed, we might also say, to universal experience, that the atmosphere of modern Rome is more healthy than that of the ancient city, and that the inhabitants frequently attain to a great age: he also adds that he never knew an epidemic result from any of the frequent inundations of the Tiber.

Among the other extraordinary events connected with the Medical and Surgical history of the sixteenth century, we have to record one which, were it not for the high authority on which it rests, might well be accounted incredible, and, even as it is, must be admitted to partake almost of the miraculous; so wholly at variance is it with all ordinary experience and preconceived opinions. This event is no other than the delivery of a woman residing at Sens, in Champagne, of a *petrified child* which was taken from her by the Cæsarian operation, in the year 1582. This fact, paradoxical as it may appear, rests upon no less authority than that of Bartholine, Paré, Licetus, and others of the most unquestionable veracity, who strongly attest its truth. It was universally believed to have lain in the maternal uterus for 20 years before she had courage to undergo the only

* "De aeris Romani salubritate, de Tiberis inundatione, et de Epidemia Romana, sive de populari ægitudine quæ anno 1591, et de altera quæ anno 1593 orta est." Romæ, 1599, 410.

operation by which she could have been relieved from so unnatural a burthen, and, after having been cut out, was carried from Sens to Paris, where it was purchased by a goldsmith, from Venice, who sold it for a large sum to Frederick III King of Denmark, by whom it was added to his collection of rarities, where it may, perhaps, yet be seen,—at least it was in existence there not many years since. That it really is a human *foetus*, and not an artificial preparation, made to impose upon the credulous, is evident, as we are informed by those who have seen it, to the eye of any observer. Its upper part is found to be composed of a substance resembling gypsum: the lower part is said to be much harder, the thighs and posteriors being perfect stone, of a reddish colour: its grain and surface perfectly resembling that of human *calculi*. How to account for this singular deviation from the ordinary laws of nature in a clear, explicit, and philosophic manner might be difficult, although not more so, perhaps, than to account for many other operations which are equally marvellous, but which, from falling more frequently under our observation, have ceased to be regarded with surprise. We know that the basis of the bones, in all created beings, is an earthy substance, which, experience tells us, may, by the action of disease, or the freak of nature, be deposited in parts for which it was not originally designed; as when ossification of the vessels connected with the heart produces *angina pectoris*, and chalky concretions form on gouty joints. The same irregularity of action which was capable of

producing the deposition of earthy matter in the muscular or tendinous fabric of the mother, in place of the bones, can be easily understood to be capable of converting the whole of the foetus, while yet unborn, into a substance such as that of which the present lusus was composed; and it would be most unphilosophical, as well as impious, to deny the possibility of a fact so repeatedly attested, merely from our inability to comprehend the mode in which the Great Creator of all thought proper to effect it. To the simple child of nature, whose wanderings have never transgressed the limits of the tropics, or ascended into the regions of perpetual congelation, or to the unlettered inhabitant of the frozen regions bordering upon the pole—the consolidation of the liquid stream into a substance rivalling in solidity the firmest rock, and the flight of fish above the surface of the deep, are phenomena far surpassing in point of credibility the lithification of the foetus—and yet both of these are phenomena familiar to every traveller, and intelligible to every tyro in philosophy. We are, unfortunately, left in the dark as to the constitutional habits of the mother, but when we know a mode by which, although somewhat out of the common course of nature, the change from an organized to an inorganic substance is capable of being effected, we should only expose our ignorance by denying or disputing a fact which rests for its support upon such authorities as Bartholine and Paré.

Among the improvements in surgery during this century we should not omit the invention of an

instrument by Ferrius Alphonsus, a physician of Naples, for extracting balls and other foreign substances from wounds. It consisted of three branches, separating elastically, but admitting of being conjoined by a ring pushed forward upon them. It was to be introduced into the wound in its closed state, the ring then drawn back to enable it to lay hold of the substance, pushed forward again to close upon it, and withdrawn. It was named, after its inventor, the Alphonsin.

About this time also William Clowes, an English surgeon of eminence, who had served in the royal navy, and settling afterwards in London, was elected surgeon to Christ's and St. Bartholomew's Hospitals, published a book on Syphilis,* in which he complains much of the rapid increase of this formidable malady. He had himself cured at St. Bartholomew's alone upwards of a thousand patients, or above 200 annually, in the course of five years. His plan of cure consisted in the use of mercurial friction, and the occasional exhibition of Turbith mineral,† or mercurius diaphoreticus, of which he speaks in terms of high commendation. Having been ordered to attend, in his professional capacity, the Earl of Leicester's army, in the Low Countries, he acquired considerable experience in the practice of military surgery, and, in consequence, published the result of his acqui-

* A brief and necessary treatise, touching the cure of the disease now usually called Lues Venerea. Lond. 1585.

† A sulphate of mercury, formerly in much repute among practitioners, but long since almost wholly excluded from practice, on account of the great uncertainty of its composition, and the occasional violence of its operation.

sitions in this new field of practice, soon after his return to England, in a work* on Gun shot Wounds, and other military injuries. It was the result of much practice and observation, illustrated by observations taken from the most approved writers, and containing the whole of what was known at that time upon the subject. In his treatment of gun-shot wounds, and punctures of the nerves, he recommends what he, no doubt, considered as emollient and soothing applications, but what can hardly be considered deserving of such an appellation in the improved system of the present day: his method, must, however, be admitted to have been a very material improvement upon the practice of his time. He describes a case of fracture of the skull, in which he employed the trephine with success; and one of compound fracture of the leg, which he cured without amputation. In short, there are few practitioners more eminently deserving the title of restorers and improvers of surgery, during the sixteenth century, than our countryman, William Clowes. In 1591, he republished this work, which had obtained for him great and deserved credit, with the addition of *Almenar's Treatise on Syphilis*, and a collection of surgical aphorisms, in Latin and English, gleaned, as he tells us, from some old works on surgery. Clowes was a rational practitioner, possessing an enlarged and intelligent mind, cultivated by study, and improved by experience. He held quacks and impostors of every description in the most sovereign

* An approved practice for all young chirurgeons, concerning burnings made with gunpowder, and wounds made with gunshot, halbert, pike, lance, &c. Lond. 1588.

contempt—such especially as pretended to effect cures by the aid of charms; and he relates a laughable story of the trial of an old woman for witchcraft, who had imposed a belief upon the ignorant that she could vanquish disease by the agency of familiars. The judges, more enlightened than was usual in those days of superstition, seeing, at once, the ignorance as well as the malice of her persecutors, promised her liberation on the condition of divulging her charm. It consisted in the unintelligible mutter of the following couplets, after the receipt of her fee, which consisted of a loaf of bread and a penny:—

My loaf in my lap,
My penny in my purse,
Thou art never the better,
And I am never the worse.

Absurd as such impostures are found to be when once detected, and impotent as they prove after their real character has been divulged, yet the veriest nonsense becomes omnipotent when clothed in the garb of mystery, and more than half the success of a cure depends upon the patient's ignorance of the true nature of the remedy employed for his restoration. The power of imagination has been frequently fatal to persons in the most perfect health; and the belief in the existence of supernatural agency is not unfrequently as mischievous as the reality could prove, especially when suffered to operate upon the minds of the ignorant and unreflecting. Even the lessons of philosophy are not always sufficient to preserve those who have imbibed them from the delusions of imagination. The illustrious Swammerdam

furnished, almost in our own days, a striking and melancholy example of this mental hallucination, accompanying an understanding sound in every other respect, and talents of the very first order. Hence, trifling as the anecdote of the simple witch and her besotted persecutors may appear, and unworthy as it may be deemed of a place in a work of professional respectability, the exposure of such impostures, by holding their puerility up to public view, was highly meritorious in the days of Clowes, and may not be altogether without its use, even in the nineteenth century.

In the year 1596, Hippolitus Bosc, a professor of anatomy and medicine, at Ferrara, contributed to the stock of surgical knowledge by a valuable work on Gun-shot Wounds,* in which he ascribes the chief mischief to the heat of the ball, and not to the contusion of the wound. He also wrote two other works on surgery which were of minor importance, and eight Lectures on Anatomy.† A namesake, and possibly relation of his, of the name of Ignatius Bosc, or Boscius, published at Ingoldstadt a Treatise‡ on the subject of the formation of calculi in the human body, especially in the bladder and kidneys, and the best methods of extracting them.

Francis Citois, or Citesius, as he chose to call

* De vulneribus à bellico fulmine illatis. 4to. Ferrara, 1596.

† De facultate anatomica lectiones viii, cum quibusdam observationibus. 4to. 1600.

‡ De liquidibus qui nascuntur in corpore humano, ne precipue reibus et vesica, et ipsorum curatione. 4to. Ingoldst. 1590.

himself, took his degree of doctor of Medicine at Montpellier, in the year 1696, and attained a considerable degree of celebrity in practice, especially by his method of treating that melancholy affection which results from the absorption of lead into the system; which he was the first to distinguish by the name of *colica pictorum*, or the painter's colic, from its frequency among persons of that trade; and which he made the subject of a dissertation, exhibiting more practical knowledge than was usual at this time. He appears to have regarded the complaint as one of recent origin, and to have been of opinion that it first made its appearance in 1572; or, at least, that it then assumed a novel and aggravated character, and was accompanied by symptoms unknown, or, at least, unnoticed before—especially paralysis of the extremities. Had he, however, referred to the writings of Paulus Ægineta,* or of Avicenna, and some other of the Arabian physicians, among the ancients, or those of John of Gaddesden,† Fernelius, Hallerius, Forestus, &c., among those nearer to his own time, he would have found, that the termination in paralysis of the limbs had been noticed long before. This complaint was epidemic to a great extent in Poitou, in 1572, but had been known in Picardy, and other parts of France, much earlier. Among other cases recorded in this work is that of a girl of twelve years of age, who, after an illness which reduced her greatly, lost both the inclination and the power of taking food;

* Cap. 18, de resolutione ex colico morbo oborta.

† Rosa Anglica, cap. 30.

and had continued in that state for the three years preceding the publication of his account. This appeared to be so highly improbable a story, that it encountered a strong opposition; in consequence of which he published a second account* of this prodigy in 1602, in which, to justify his belief in the tale, he added a variety of unaccountable stories of long abstinence both of men and beasts. However, after all his pains to establish the veracity of the girl's story, her case proved, eventually, like that of Anne Moore, the fasting woman of Tetbury, in our own days, a complete imposture; the girl, on being removed from her mother, taking at first milk, after that broth, and coming at last to the use of solids like other people.—A few years after this, he published a work† on the advantages of bleeding and purging, in which he defends the practice in variola and inflammatory fevers. In these complaints he ordered a repetition of the venesection to the fourth or fifth time.

Citois at length retired from practice in Paris, and went to reside at Poitiers, where he died in 1652, at the age of eighty years.

* *Abstinencia puellæ Consolantanæ, ab Israelia Harveti confutatione vindicata*, 8vo, 1602. A translation of this work appeared the following year in London.

† *De tempestive phlebotomiæ et purgationis usu, adversus Homophobas*, in collectione opusculorum, 4to. Paris, 1639.

CHAPTER IX.

Progress of Anatomy during the 16th century—Bonacciolus: his *Enneas Muliebris*—Achillini—Berengarius—Servetus—Circulation of the Blood—Gunterus his Anatomical Discoveries: Vicissitudes in his Life—Dryander—Vesalius—Columbus—Valverde—Ingrassia—Fallopianus—Eustachius—Arantius—Coiter—Varolius—Cesalpinus: his near approach to the Discovery of the Circulation—Claim of Paolo Sarpi and others to the merit of that discovery, unfounded—Piccolomini discovers the three Valves at the Entrance of the Cæcum: maintains the Origin of the Nerves to be from the Medulla Oblonga distinguishes the Cortical from the Cineritious Portion of the Brain: describes the Adipose Membrane—Hieronymus Fabricius ab Aquapendente first demonstrates the Structure of the Valves of the Veins: instructs Harvey in Anatomy: created a Knight of the Order of St. Mark by the Republic of Venice: offends his German Pupils—Salomon Albertus.

THE Progress of Anatomy during this century partook, with almost every other branch of useful knowledge, most abundantly of the general stimulus which now began to result from the two great events of this period,—the discovery of the art of printing, and that great reformation in religion, which the united labours of the first reformers effected during the preceding century. Greater progress was made in the march of anatomical and physiological discovery between the years 1500 and 1600 than in all the lengthened period which preceded it.

The first anatomical work deserving notice in this century is a large folio volume,* published in 1503, and dedicated to Lucretia, daughter of Pope Alexander VI; although this dedication is only to be met with in the folio Princeps edition, having been omitted in the subsequent impressions, either because the importance of the lady sank upon the death of her father, or because with the termination of the reign of that profligate and licentious pontiff in that very year, a reign of purer morals commenced, when men, or possibly the lady herself, began to see the gross indelicacy of dedicating a work expressly on the formation of the foetus, and in which "*alia plurima quoque ad coitum, et ad rem veneream facientia, dictione liberrima describuntur*," to a female with the slightest pretensions to modesty. In this work he gives a clear description of the clitoris and the nymphæ, and is the first writer who points out the distinction between them. This work formerly was highly prized on account of the accuracy of its anatomy of the foetus and the organs of generation in both sexes. It is now however, of little value.

In 1516, Achillini first published, at Venice, his great work on the Anatomy† of the Human Body, a work of considerable merit for the age; and in 1522, his Annotations on the Anatomy of Mundinus‡ made their appearance along with the "*Fasciculus Medicinæ Johannis de Ketham*." He is

* *Enneas muliebris, sive de foetus formatione, &c.* Fol. 1503. An 8vo. edition was published in 1537.

† *De homini corporis anatomia*, 4to. Venet. 1516

‡ *In Mundini anatomen annotationes*, fol. Venetis, 1522.

believed by some to have been the discoverer of the *Malleus* and the *Incus*, among the bones of the internal ear. Achillini, who was born at Bologna, in 1472, was justly celebrated both as a physician and a philosopher. Such was the rapidity of the progress which he made in his studies, that he was, at a very early age, appointed a professor; and was promoted, in 1506, to the chair of philosophy at Padua, where his lectures were attended by multitudes of pupils. Being, however, compelled by the war between Venice and the league of Cambray to quit Padua, he returned to Bologna, where he was re-appointed to the chair of philosophy. He adopted and maintained the doctrines of Averrhoes, and was remarkable for his acuteness in controversy. He was the rival of Pomponacius, whose wit often gained him the victory; for, notwithstanding the superiority of his talents, such was the simplicity and *mauvaise honte* of Achillini, that, although admired and respected for his abilities and erudition, he was the butt of his own pupils. He died at Bologna, and was interred in the Carmelite church of St. Martin the Great, at the early age of forty years; and a complimentary epitaph was afterwards penned to his memory by James Vitalis.

The name of Berengarius has already been introduced in the last chapter, on account of his being the reputed originator of the practice of salivation, by means of mercurial friction, in cases of Syphilis; but it is from his important researches into the anatomy of the human body, that he justly derives that celebrity which has immortalized him under the name of Carpus or Carpensius,

a name derived from Carpi the place of his nativity. Such, indeed, was his passion for anatomical pursuits, that he incurred, as has been already noticed, the imputation formerly brought against Herophilus and Erasistratus, and afterwards, in a more enlightened age, against the illustrious Vesalius, of having dissected living human subjects for the purpose of observing the peristaltic motion of the bowels. In 1521, he published his *Commentaries upon the Anatomy of Mundinus*,* a work valuable not only on account of the numerous corrections of the text which it contains, but also on account of the vast collection of anatomical facts it exhibits, and which furnish equal proof of his diligence and skill, insomuch that Haller, speaking of it, says, "*ea omnia enarrare quæ recte videt, infinitum foret—*" to point out individually everything which the author has correctly observed, would be an almost endless undertaking. This work contains some rude engravings of the abdominal muscles, and other parts. In the following year he published his *Anatomy*, at Bologna,† accompanied with plates. This and the former work contain the whole of his anatomical discoveries. He was the

* *Commentaria, cum amplissimis additionibus, supra Anatomiam Mundini, cum textu ejus in pristinum nitorem redacto.* 4to. Bononiæ, 1521.

† *Isagogæ breves, pellucidæ et uberrimæ, in Anatomiam humani corporis, ad suorum scholasticorum preces in lucem editæ.* 4to. Bononiæ, 1522. 8vo. Colonia, 1529. 5vo. Argentorati, 1533, and 4to. Venetiis, 1535.—A translation was published in London in 1664, by H. Jackson, under the title of "*A Description of the Body of Man, being a practical Anatomy.*" Besides these works he had published a treatise "*De cranii fractura,*" 4to. Venetiis, 1518.

first to observe and explain the appendix of the *intestinum cæcum*, which he describes at length under the name of *Additamentum Coli*. He considered the three divisions of the *recti* muscles of the abdomen, as the tendons of three muscles which serve for the contraction of the abdomen. He was the first to describe the anastomosis of the *vena portæ* and *vena cava* within the liver. He also first observed the caruncles in the kidneys, which resemble the nipples of the breast; and denominated the *linea alba*, *linea centralis*, from its position along the centre of the abdomen. Speaking of the ear, he observes that two little bones adjacent to the tympanum, being moved by the undulation of the air, strike against each other, and by their motion produce the sensation which we call sound. This, he observes, is the real structure of the parts, which, notwithstanding its being so remarkable, had been noticed by few. In this account he does not, however, claim, as some have done for him, the merit of being himself the discoverer.

A few years later than the anatomy of Berengarius, Servetus, a Spanish physician, eminent for his talents, and not less so for his erudition, published those two works* which, however they may be regarded as detracting from the orthodoxy of his religious opinions, establish his claim to the rank of a philosophical inquirer, a good anatomo-

* *De Trinitatis erroribus*, Basilee, 1531, and *Christianismi Restitutio*. Basil, 1533. This work, from having been obnoxious to the clergy, and its copies, no doubt, destroyed wherever their influence extended, has become so scarce, that not above two or three copies are known to exist.

mist, and an attentive observer. In his work entitled "*De Christianismi restitutione*," we find the first genuine ray of light which has been thrown on the circulation of the blood, by any of the writers* who preceded our illustrious countryman, Harvey. The work which contains the passage proving Servetus to have been, at least, partially acquainted with the manner in which the circulation of the system is maintained, is of such extreme rarity as to be of enormous value, and attainable but by few: the passage itself is as follows:—After observing that the vital spirit is composed of the most subtle parts of the blood, and of the air which insinuates itself into the lungs, and that the source of this blood is in the right ventricle of the heart, he goes on to say: "But the communication, that is to say, the passage of the blood from the right to the left ventricle, does not take place across the middle septum, as persons have generally imagined; it depends upon a more singular structure. In the long winding of the lungs, this subtle blood is agitated, and prepared by the action of the viscus, and gains a yellow colour. From the *vena arteriosa*† it passes into the *arteriæ venosæ*,‡ where it becomes mingled with the air that has entered the lungs, and loses its fuliginous excrements. Lastly, it enters the left ventricle, which attracts it in its

* The pretended claim to this discovery advanced on behalf of Nemesius has been already canvassed in a former part of this work.

† Pulmonary artery.

‡ Pulmonary veins.

diastole. Such is the preparation of the blood from which the vital spirit is formed ; this preparation, and this passage from the *arterial vein*, into the *venous artery*, are evidently proved by the size of the vessels, which would not be so large, nor possess so many branches, nor carry so great a volume of blood to the lungs, if it were merely designed for the nutriment of that viscus." He then adds that this vital spirit is sent from the left ventricle into all the arteries of the body. From all this it is sufficiently clear that he had a perfect acquaintance with the minor circulation through the lungs, and even some idea of the chemical change which the blood undergoes from coming in contact with the atmospheric air in that organ—and thus laid the foundation of that noble superstructure, which had baffled the genius and enterprise of all his predecessors ; and which none, even of his successors, aided as they were by the clear manner in which he had pointed out part, and intimated the remainder of the way, were able to accomplish, until the patient investigation, and brilliant talents of our countryman Harvey, after a lapse of nearly another century, discovered the important secret, and completed that beautiful theory of the circulation, of which Servetus' discovery can only be regarded as the faint *penumbra*.

In the year 1536, Johannes Guinterius, whose real name was Winther, a native of Andernach, a town of the district of Ubich, in the circle of the lower Rhine, published a valuable work on Ana-

tomy,* in which we find the term *Pancreas* first applied to that large conglomerated gland which lies across the spine, and behind the stomach, between the two lamina of the mesocolon; resembling the salivary glands in appearance, as well as in the manner of the formation of the duct by means of which its contents, also similar to those of the salivary glands of the mouth, are poured out into the duodenum along with those of the liver, to assist in the process of digestion, which, commencing in the stomach, is carried on more or less through the whole length of the intestinal canal. Guinterius also boasts of the discovery of the complication of the spermatic vein and artery, a little before their insertion into the testes—a circumstance which, he says, he pointed out to Vesalius when he was studying anatomy at Paris, about the year 1526. The uterus, he said, had two sinuses, corresponding with the number of the breasts, not divided by a septum, but terminating in one narrow cavity, which he terms the neck of the uterus. He maintains that the muscle which surrounds the neck of the bladder is formed of transverse fibres, and discharges several functions, first serving to close the bladder and then, after the discharge of the urine, propelling what remains in the urethra by the variety of its contractions in every direction.

Few histories illustrate more forcibly the omnipotence of talents in elevating their possessor to

* *Anatomicarum institutionum ex Galeni sententia, per J. Guinterium Andernachum, Medicum. Libri quinque. Basilæ, 1536. 8vo. 1539, 4to.*

rank, to fame, and fortune, than that of Winther, who, although sprung from a family in the humblest paths of life, succeeded, after struggling with the greatest difficulties for a long succession of years, in raising himself to the first distinction, and obtaining a place among the nobles of the land, as a spontaneous tribute to his merit from the Emperor Ferdinand I.

Winther was born in 1487, and sent at the age of twelve to Utrecht, to study the classics. Finding his means of continuing his studies here to fall short, he removed to Deventer, where his wants were at first so urgent, as to compel him to stoop to the degradation of begging, and to solicit as a favour the most menial employments.

Labour, industry, economy, and sobriety, enabling him at length to overcome these difficulties, he removed to Marpurgh, for the sake of cultivating natural philosophy; and, while there, displayed such brilliant talents and such extensive erudition, that the inhabitants of Gosling gladly availed themselves of the opportunity of his residence in their neighbourhood to engage his services as an instructor for their children. His fame rapidly spreading, he was appointed Professor of Greek to the University of Louvain; but the bent of his genius leading him to prefer the science of Medicine to the study of the ancients, he remained but a short time at Louvain, and, resigning his newly acquired Professorship, removed to Paris, at that period the Edinburgh of medical pursuits.

Here he commenced the study of Medicine in 1526, taking his Bachelor's degree in 1528, and his Doctor's in 1530, upon which occasion, in consideration of the inadequacy of his means, and in consideration also, there can be little doubt, of his pre-eminent merit, half the regular charges for graduation were remitted to him. Having thus, at length, reached the point which his ambition so long, and, for a time, so hopelessly prompted him to, he was gratified by the appointment of physician to Francis I, and continued for many years to practice in Paris, where he was also in the habit of giving private lectures on anatomy. An advantageous offer from Christian III of Denmark, induced him at length to exchange the gaieties of Paris for the more sober habits of Copenhagen, where he continued to reside till the religious disturbances in 1537 compelled him to remove first to Metz, and thence to Strasburg. Here he was received with the honour due to his merits, appointed to a professorship in the University, and established in a lucrative and extensive practice, which he continued to enjoy with reputation and success for a great number of years, extending his visits occasionally to almost every part of Germany, and even into the fertile plains of Italy. At length, as has been already observed, letters of nobility, the honourable testimonials of his illustrious merit and distinguished services, were gratuitously conferred upon him by the Emperor Ferdinand I in the year 1562, and he had the gratification of exhibiting to the world the rare but encouraging example of the beggar of Deventer rising, by unaided merit, to

the rank of a nobleman of Strasburg. Some years after his elevation to this well-earned rank, and within two years of the termination of his exemplary life, he published two volumes of a work on the new and old systems of medical practice,* and, at length, closed his chequered life in the 87th year of his age, on the 4th of October, 1574, having been attacked with an ardent fever at the house of a noble patient whom he was attending, whence he was removed to his own house, and there he expired.

The life of Guinterius holds out a most instructive lesson to the young, teaching them not to despond under the most discouraging circumstances, nor to abandon hope under the severest calamities. There is no difficulty so great, no depression so low, as to be beyond the counteracting influence of talents, aided by industry, by patience, by prudence, and by perseverance; and although the ancient proverb, "*Non cuius licet adire Corinthum*" may still be found to hold good, and it may not fall to the lot of all to attain the dignity of the peerage, it is, nevertheless, within the compass of most who possess ordinary capacity to raise themselves above want, and attain to respectability, if not to distinction.

Contemporary with, but somewhat junior to Guinterius, was John Dryander, a native of Wetteran, in Hesse, who deservedly ranks high among the restorers and improvers of anatomy. His real name was Eichmens, which he exchanged, according to the custom of the age, for one of more

* De Medicina veteri et nova. 2 vols. Fol. Basilee, 1571.

dignity. Having been educated in France, and taken his degrees in Medicine at Mayence, he settled at Marpurgh, where he taught anatomy for a period of twenty-four years, or from 1563 to the time of his death in 1560. He was the first to point out several distinctions, unnoticed before his time, between the cortical and medullary portions of the brain. He also saw the olfactory nerves, which he miscalled the optic. These observations he published in his *Anatomy** in the year succeeding that in which he began to lecture at Marpurgh; and at a subsequent period he published a new edition of the *Anatomy*† of Mundinus, carefully collated with the oldest MSS.—in which he frequently corrects his author.

At this period also flourished the illustrious Vesalius, appearing like a star of the first magnitude amid a galaxy of minor luminaries. He was a native of Brussels, and raised himself early by the strength of his genius, and the force of his industry, to the first rank among the improvers of anatomy. He obtained the admiration not only of his contemporaries, but also of his successors. His first work, on the structure of the human frame,‡ made its appearance at Basil, in the year 1543, and went through four editions in the course of about 60 years; which, when we consider the bulk of the volume, speaks largely in favour of its merit

* *Anatomie pars prior, in qua membra ad caput spectantia recensentur et delineantur.* 4to. Marpurg, 1537.

† *Anatomia Mundini ad vetustissimorum manuscriptorum codicum fidem collata.* Marpurg, 1541.

‡ *De hominis corporis fabrica.* Fol. Basilee, 1543.

and its popularity. To enumerate the whole of the important discoveries made by this indefatigable and sharp-sighted anatomist, would almost be to give a transcript of his voluminous and important anatomical works; a few, however, of the more prominent demand attention. He was the first to notice the fact of the optic nerve being inserted a little on one side, and not directly in the axis of the eye, and observed that the *ligamentum teres* of the thigh was not inserted into the middle of the head of the bone, but rather into its side. He also gave us the first correct representation of the bones which constitute the organs of hearing.

Besides his anatomical works, which continue in high esteem even to the present day, Vesalius wrote a book on the use of the Decoction of the China Root,* an alterative much in use at that period in syphilitic and other cases.

Contemporary and intimate with Vesalius, was Realdus Columbus, (a native of Cremona,) and distinguished, like him, for the extreme accuracy of his anatomical researches. Following up the ideas of Servetus respecting the circulation of the blood, he gave a farther finish to the imperfect sketch left by that able physician and expert anatomist; not only describing the entrance of the blood from the vena cava, and its subsequent transmission, through the pulmonary circulation, to the left ventricle and the aorta, but demonstrating that the whole of the blood passes through the lungs, and

* De modo propinandi Radicis Chinae Decoctum. Fol. Basileæ, 1546.

not the vital spirit only; thus making one step further in advance toward the great discovery, beyond his predecessor Servetus, but still falling into the same error with former anatomists respecting the functions of the liver, which he imagined to be the source of the blood that goes to supply nutriment to the stomach, &c. He explains the use of the lungs to be for the preparation and generation of the blood and vital spirit in them: for he imagined that the blood, being attenuated by elaboration in the right sinus or ventricle of the heart, is carried thence to the lungs, where, by their continual action, it is agitated, farther attenuated, and mixed with the air entering through the bronchiæ from the trachea—and that the blood and air, when thus incorporated together, are received into the ramifications of the pulmonary vein, and carried by it to the left ventricle of the heart. This theory of the functions of the lungs, and the nature of the change which the venous blood undergoes in its passage through that viscus to be brought back to the condition of arterial blood, if restricted to the absorption of the oxygenous, or vital portion of the air taken in at each inspiration, is almost in perfect accordance with the discoveries of modern chemistry. Besides his researches into the nature of the circulation, Columbus made discoveries in other parts of anatomy which deserve to be noticed. He was the first who clearly and accurately described the caruncles in the vagina of females, or spoke of the duplicature of the peritoneum, and asserted that the pleura, also, was double in every part. He like-

wise claims the merit of having discovered the *tunica innominata* of the eye, which Douglas, however, imagines to be the same described by Galen under the name of the *tunica sexta*. The discovery of the third bone in the organ of hearing appears likewise to belong to him.

Johannes Valverde, a Spaniard, who had studied under Columbus, is said to have introduced the study of anatomy into his native country, where he published the anatomical plates of Vesalius, with a Spanish translation of the descriptions, and an addition of four new figures, representing the direction and progress of the fibres composing the muscles of the anterior part of the body, a woman in a state of pregnancy, and the cutaneous veins of the anterior and posterior parts of the body. With the exception of these four additional figures, he does not appear to have contributed any thing original to the science, or to have done more than to extend the knowledge of it to another country in which, till then, it does not seem to have been much, if at all studied.

Among the other successful cultivators of anatomy at this period, we must not omit to mention John Philip Ingrassias, a native of Sicily, who, after studying Medicine at the university of Padua, took his degree of doctor there in 1537 with such singular distinction that he received, almost immediately after, invitations to accept of professorships at various schools in Italy: and accepting the chair of Medicine and Anatomy at Naples, which he retained with infinite credit for many years, attracted vast numbers of pupils

from all quarters to hear his lectures. He was peculiarly qualified for the situation he filled, by uniting a most intimate acquaintance with the works of the ancients, to a thorough knowledge of all the prevailing doctrines of the day, great practical skill in the science of Anatomy, and a sound judgment, which enabled him to form a just estimate of the relative and comparative merits of the ancients and the moderns. He cultivated Anatomy with great assiduity, and is deservedly ranked among its most distinguished improvers; in that part especially which relates to the bones of the head and the organ of hearing, in the latter of which he first pointed out the *stapes*, a discovery which, although claimed by others, has been deservedly awarded to him by Fallopius, whose decision must be regarded as unquestionable. He also described minutely the cavity of the *tympanum*, the *fenestra rotunda* and *ovalis*, the *cochlea*, semicircular canals, &c. &c. and Eloy was led, from an inspection of his plates, to think he must have been acquainted with the muscle of the *malleus* which Eustachius has generally obtained the credit of having discovered. The discovery of the seminal vessels is also ascribed to him. His pupils paid an honourable tribute to his great talents and unwearied exertions for their improvement, by having his portrait taken and placed in the Neapolitan schools with this inscription underneath: *Philippo Ingrassia, Siculo, qui veræ medicinæ artem et anatomien, publice enarrando, Neapoli restituit,*

Discipuli, memorie causa, P.P. "To Philip Ingrassias of Sicily, who, by his lectures, restored the science of true Medicine and Anatomy in Naples, his pupils have suspended this portrait as a mark of grateful remembrance."

He at length returned to his native island, where he was honourably received, had the rights of citizenship conferred upon him, and was appointed in 1563, Proto-Medicus of Sicily and its adjacent islands, by Philip II of Spain. This office appears to have been one of the very first importance, since the person holding it seems to have concentrated in himself all the powers which belong in this country to the College of Physicians collectively; and hence its possession enabled Ingrassias materially to contribute to the improvement of medical science, which he effectually did by a severe and rigid examination into the qualifications of the several candidates; a duty which he discharged with the most conscientious and honourable impartiality. Such was the excellence of his regulations, during the prevalence of the destructive plague which depopulated Palermo in 1575, that he obtained from the universal voice of his fellow citizens the honourable appellation of the Sicilian Hippocrates. But such was his generous disinterestedness, that when the magistrates, in gratitude for his great and invaluable services, voted him a reward of two hundred and fifty gold crowns per month, he declined receiving more than was necessary for the endowment and decoration of the chapel of St. Barbe which he had built in the cloister of the Dominican Convent at

Palermo. He published ten works during his life, of which a list is annexed in the note,* and most of which went through several editions; but his principal work,† consisting of a commentary on Galen's book on the Bones, and containing the text of Galen in Greek and Latin, accompanied by a copious and erudite commentary which enters minutely into the description of the parts, those especially connected with the organ of hearing—and a vindication of Galen, as far as was possible, except against the truth of modern dis-

* The following is a list of the several works published by Ingrassias during his life time.—*Iatropologia*; Liber quo multa adversus Barbaros Medicos disputantur, 8vo. Venet. 1544—1558. *Scholia in Iatropologiam*. Neap. 8vo. 1549. *De tumoribus præter naturam*, Fol. Neap. 1553. This, in fact, is a commentary on some of the works of Avicenna.—*Ragionamento fatto sopra l'infermità epidemica dell'anno 1558*. 4to. Palermo 1560 to which was subjoined: *Trattato di due mostri nati in Palermo in diversi tempi*.—*Constitutiones et Capitula, nec non Jurisdictiones Regni Proto-Medicis officii, cum Pandectis ejusdem reformatis*, 4to. Panormo, 1564—1567. In this he gives an interesting account of the nature and duties of the office to which he had himself been appointed the preceding year. *Questio de purgatione per medicamenta, atque ubi etiam de sanguinis missione, an sexta die possit fieri*, 4to. Venet. 1544. *Galenus ars medica*, fol. Ven. 1573. *De frigido potu post medicamentum purgans Epistola*, 4to. Ven. 1575. *Informazione del pestifero e contagioso morbo, il quale affligge e habbe allitto la città di Palermo e molti altre città e terre del regno di Sicilia, nell' anno 1573 e 1576*, 4to. Palermo 1576—giving an account of the dreadful visitation in which he distinguished himself so much for zeal and ability. A Latin translation of this was published in 1583, at Norimbergh, by Joachim Camerarius, under the name of *Methodus curandi pestiferum contagium*.

† The title of this posthumous publication was "*In Galeni librum de ossibus doctissima et expertissima Commentaria*." Messina, 1603.

covery—did not appear till after his death in the year 1580, at the age of eighty years. This posthumous work was at length printed at Messina under the superintendence of his nephew Nicholas Ingrassias.

Few men have more eminently distinguished themselves in the path of science than Ingrassias, and if his fame as an Anatomist has not rivalled that of more successful competitors, the cause must be sought, not in any deficiency of zeal, of industry or of ability in him, but in the multitude of candidates for fame who at this period crowded the field of anatomical research.

In the year 1548 Pisa had the honour of receiving, as professor of Anatomy, Gabriel Fallopius, one of the most expert anatomists, and distinguished physicians of this century. Fallopius, or Fallopio as he was correctly called, was born, it is believed, at or near Modena, in the year 1523; and, after first studying anatomy under the celebrated Brassavola, travelled into other countries for farther improvement. He is said to have acquired an astonishing share of knowledge at a very early age. If the period assigned for his birth be correct, he was only twenty-five when he obtained the professorship at Pisa, and at that age he had, as we are informed, made himself master not only of Medicine and Anatomy, but also of Botany, Astrology, and Chemistry. Such was the reputation, however, which he had acquired for his anatomical skill, that his lectures both at Pisa and at Padua, to which latter place he removed about the year 1551, attracted crowds of auditors.

He was, as Douglas has most happily described him, "*in docendo maxime methodicus, in medendo felicissimus, in secundo expeditissimus,*" most methodical in teaching, most successful in healing, and most expeditious in dissecting. His industry contributed greatly to the elucidation of anatomy, although he has claimed and obtained credit for discoveries made long before his time. The uterine tubes which are supposed to receive the ovum from the ovarium in order to convey it into the uterus, and which Anatomists have usually distinguished by his name as though he were their discoverer, were both known to, and described by Herophilus, and Rufus of Ephesus. Equally unfounded is his claim to the discovery of the *musculi pyramidales*, which were observed before his time by Galen, and by Jacobus Sylvius. So justly high, however, does his character stand in other respects, that these trifling circumstances tend but little to detract from it. His "Anatomical Observations,"* is one of the best productions of that century. He was the author, besides, of a long catalogue of other works, all of which possess the highest merit. He died at the early age of forty, in the year 1563.

Bartholomew Eustachius, whose anatomical plates are familiar to most medical students, contributed also by his labours to the improvement of anatomy: and his Anatomical Works,† pub-

* *Observationes anatomicæ in libros quinque digestæ.* Venetis, 1561.

† *Opuscula Anatomica, nempe de renum structura, officio,*

lished at Venice in 1563, record a variety of important discoveries which he made. Of his history we only know that he was born at San Sere-rino, a small village of Italy, probably about the year 1520, and studied Anatomy at Rome with such success that he was appointed to the chair of Anatomy in that College; and died there in 1574. The greater part of his works have been lost, which, judging from those that remain, cannot be sufficiently regretted. To him we are indebted for the discovery of the renal glands. He blames Vesalius much for not having acknowledged that, when examining the kidney, he had employed that of a dog, in place of the human, and for not having taken notice of the difference. He maintained that the duct of the renal veins is oblique and not transverse as represented by Vesalius: and gave a beautiful delineation of the *Canaliculi urinarii*, which he compares to minute hairs, but which had been described by Massa before him. He is among the number of claimants for the discovery of the *stapes*, an honour which Fallopius, however, allots to Ingrassias. We owe to him the first accurate description of the *Thoracic duct*, which, he says, resembles a white vein, in horses, and opens with a semicircular orifice into the internal jugular vein. The discovery of the canal leading from the throat to the ear, which answers so important a purpose in the

et administratione . de auditûs organo . ossium examen . de motu capitis : de vena quæ azygos dicitur, et de alia quæ in flexu brachii communem profundam producit . de dentibus. Venetius 1563.

office of hearing, is owing to him, and has very properly been distinguished by his name. In his treatise on the kidneys he speaks of the glands of the larynx. The valve at the orifice of the coronary vein of the heart was first discovered by him; and he claims the discovery also of the valve in the *vena cava*, near the right auricle of the heart, which, however, appears to have been observed by Sylvius before him.

Such are the leading features of the investigations and discoveries of this distinguished anatomist, whose useful labours contributed in no trifling degree to awaken the dormant spirit of inquiry, and promote the march of improvement.

In 1564, Julius Cæsar Arantius, a native of Bologna, where he was born about 1530, and educated by his uncle Bartholomew Muggius, and Vesalius, published his first work "*De humano fœtu opusculum*," at Rome, in which he corrected many errors into which preceding anatomists had fallen respecting the uterus; the vessels of which he very properly describes as derived from the spermatics and hypogastriacs. In the first chapter of the quarto edition of this work, published at Venice in 1587, he describes the substance of the uterus as resembling a sponge, not simple but divisible into laminae, and perforated with minute holes or pores. His description of the vessels of the uterus is given in the third chapter.

In the fourth chapter he describes the *foramen ovale*, and *ductus arteriosus* in the fœtus; and denies the existence of the *urachus* or *allantois* in the human subject.

In 1579, Arantius published a commentary upon Hippocrates' book on wounds in the head: and in his work "*De tumoribus præter naturam*," 4to., published in 1581, he describes a pair of forceps which he had invented for extracting polypi from the nostrils. He made one step farther towards the discovery of the circulation than most of his predecessors, having in this work demonstrated that there was no communication after birth from the right to the left ventricle of the heart, but that the blood was carried through the lungs by the pulmonary artery. This fact had, however, been already demonstrated by Serretus and Columbus.

Arantius filled the chair of Medicine, Anatomy, and Surgery, in the University of Bologna, where he had taken his degree of Doctor of Medicine, till the time of his death in 1589, and bore the character of an expert and indefatigable anatomist.

Volcher, or Volcherius Coiter, a native of Groningen, and pupil both of Fallopius and Eustachius, proved himself worthy of the illustrious masters under whom he studied, being so passionately attached to anatomical pursuits, that after he had completed his studies at Padua, at Rome, at Bologna, and at Montpellier, he accepted the post of physician to the French army, in order to increase his opportunities of obtaining subjects for dissection. His numerous observations on the effects or alterations produced by different diseases in the structure of the viscera, prove his singular fitness for the situation he held. Notwithstanding the shortness of his life, such were

the energy and activity of his mind, that he made as much of the scanty period allotted to him as others do of the most protracted length of days, and he contributed largely to the improvement both of anatomy and surgery ; among the former of which were his observations on the brain, whose motion he found to originate in that of the arteries. He also ascertained that this organ was not always essential to life, which, in some animals survived its removal. Coiter, or Koyter, as we sometimes find the name written, was the first who gave a description of the *corpora lutea* in the *ovaria*, together with the order in which the parts of a chick are developed in the egg. With respect to the heart, he observed the contraction of the auricle to follow, not precede that of the ventricle. His descriptions of the frontal sinuses, as well as of the organs of hearing, are infinitely more copious and minute than those of any other author. He discovered, or at least appears to have been the first to describe, as distinct muscles, the two corrugators of the eyelids, together with two similar muscles belonging to the lips. He explains the origin of the bones in the most distinct and satisfactory manner, accounts for their growth, and shews in what the difference consists between those of an infant and those of an adult ; and, for the purpose of explaining this difference more intelligibly to his pupils, he made preparations of skeletons of various ages for demonstration.

In 1566, he published his engravings of the

Cartilages.* Settling at Nuremberg, after he had left the army, he published in that town his principal anatomical work,† to which he prefixed a short account of the history and progress of anatomical knowledge, pointing out the order in which it should be studied. In this work he first gave a complete set of plates of the skeleton of a foetus, explanatory of his observations on the growth of the bones. In his remarks upon the organs of hearing, he points out an error in Fallopius' account of what he calls the *tympanum*, his description of which was taken chiefly from the ears of such animals as chew the cud, in whom this passage is formed like a certain kind of sea-shell, or a Turkish drum, while its form in man is totally different. Hence he is of opinion that this cavity receives its name rather from its use than its form. He contends that there are two of these cavities; for, he says, immediately behind the myringa, as he terms the tympanum, in the upper and anterior parts, there appears a cavity, at first narrow, but gradually dilating, and stretching backwards towards the upper parts: this part he observed to be spongy and fungous, and to communicate with the internal space of the mammillary process. The two largest of the bones of the ear contain, he says, a multitude of small

* De cartilaginibus, Tabulae quinque, Fol. Bononiæ, 1566.

† Externarum et internarum principatum corporis humani partium tabulae atque anatomicae exercitationes, observationesque variae, novis et artificiosissimis figuris illustratae, Fol. Nurembergi, 1573.

holes filled with a medullary substance ; but this is not the case with the third, which is too small.

In 1575, he published a folio volume of comparative Anatomy,* in which he has given good figures of the skeletons of various quadrupeds, birds, and amphibious animals ; and in the following year, 1576, he closed his short but useful life, at the premature age of forty-two.

Coiter has noticed, among his surgical observations, that the danger is much greater, in injuries of the brain, where the dura mater continues unruptured, than where it has been ruptured ; in such cases, therefore, he opened it boldly to let out the extravasated matter. Fungous excrescences of the brain, he says, may be safely pared down. In one case he cured a patient who had received a wound in the brain, reaching down to the ventricles : but the patient ever after was subject to mental aberration.

About this period Constantius Varolius, a native, like Arantius, of Bologna, and distinguished for his anatomical skill, discovered that transverse process of the brain which has been denominated, in honour of him, the *Pons Varolii*, Varolius's bridge : he also first discovered the glands of the choroid plexus. Varolius was also the first to divide the brain into three portions, by adding the *medulla oblonga*, or upper portion of the spinal marrow, previously to its issuing from the skull,

* *Diversorum animalium sceletorium explicationes, cum lectionibus Fallopi de partibus similaribus*, Fol. Norimb. 1575.

and giving birth to nerves whose origin had been supposed to be in the brain. The discovery of the valve of the colon, of which he has left an elegant and accurate description, has also been ascribed to him.

As we approach nearer to the period at which Harvey completed his grand discovery of the circulation of the blood, on the very brink of which men had so long hovered without effecting it, we find facts multiplying and discoveries being made, which, like a number of paths converging to one point, appear almost to force the mind to take the right direction, and seem to have left little more for such a mind as Harvey possessed, than to draw the conclusions which naturally flowed from the observations already made, and verify those conclusions by a series of experiments such as the state of science enabled him to make: which we shall presently find to have been the very course he pursued. Almost every anatomist who took up the inquiry, enriched the observations of his predecessors by discoveries of his own, and thus accumulated a mass of important facts, only requiring due examination to lead to an inevitable detection of the truth. Thus we find Columbus improving upon the demonstrations of Servetus, and Arantius upon those of Columbus; while Cæsalpinus, no less distinguished for his skill in anatomy, than for his services in botany, in his *Peripatetic Questions*,* which he wrote in

* *Questionum Peripateticarum, libri quinque, 4to. Venetus, 1571.*

opposition to the doctrines of Galen, makes still closer approaches to the truth. In the fourth book of that work we find the following very remarkable passage:—"Vasorum in cor desinentium, quædam intromittunt contentam in ipsis substantiam, ut vena cava in dextro ventriculo, et arteria venalis in sinistro; quædam educunt, ut arteria aorta in sinistro ventriculo, et vena arterialis in dextro; omnibus autem membranulæ sunt oppositæ et officio, delegatæ, ut oscula intromittentium non educant, et educentium non intromittant. Contingit, corde contrahente, arterias dilatari, et dilatente constringi; dum enim dilatatur cor, claudi vult orificia educentium, ut ex corde non influat tunc substantia in arterias; contrahente autem se, influere dehiscenibus membranis."—He supposes the pulsation of the arteries to arise from an effervescence of the blood in the heart. But he is still more explicit in the fourth chapter of the fifth book of the same work, (folio 125,) where he describes the minor circulation through the lungs, which Servetus first distinctly demonstrated, in the following terms: "Ideirco pulmo per venam arteriis similem, ex dextro cordis ventriculo fervidum hauriens sanguinem, eumque per anastomosim arteriæ venalis reddens quæ in sinistrum cordis ventriculum tendit, transmisso interim aëre frigido per asperæ arteriæ canales, qui juxta arteriam venalem protenduntur, non tamen osculis communicantes, ut putavit Galenus, solo tactu temperat. Huic sanguinis circulationi ex dextro cordis ventriculo per pulmones in sinistrum ejusdem ventriculum, optime respondent ea quæ ex

dissectione apparent. Nam duo vasa in dextrum ventriculum desinentia, duo etiam in sinistrum. duorum autem unum intromittit tantum, alterum educit, membranis eo constitutis." He thus clearly described the manner in which the blood circulates from one ventricle of the heart to the other, and shewed that he fully understood the nature and use of the valves. He approached so close to the verge of the grand discovery of the return of the blood from the arteries through the veins, that he even noticed the fact of the veins swelling below a ligature. Here, however, he stopped short, and was so far from comprehending the general principles of the circulation, (notwithstanding Douglas's thinking him entitled to equal praise with Harvey, who only completed what he had commenced,) that he believed the blood to move backwards and forwards in the same vessels, returning to the heart during sleep. Like all who had hitherto preceded him in the investigation, Cæsalpinus found in the liver a labyrinth of vessels, in which he became inextricably bewildered: and was so far from having a just conception of the true nature and importance of the facts which had fallen under his observation, or the results which were likely to flow from them, that he only served to furnish an additional proof of the imperfection of the human faculties, and the close approach which it is possible to make to the regions of discovery without attaining to the actual completion of our purpose.

As for the claims of Paolo Sarpi, the learned historian of the Council of Trent; of Fabri a

Jesuit; of Helvicus Dietericus, and others, to the merit of having anticipated Harvey in the honour of his great discovery, they rest upon too shadowy and unstable a foundation to merit a moment's consideration.

Archangelo Piccoluomini, or Archangelus Piccolhominius, published a work on Anatomy* in the year 1573, which, (notwithstanding the objections of Riolan, who complains that it is more philosophical than anatomical, and wanders into the regions of physiological reverie, and theoretical romance, instead of confining itself to the useful path of practical observation,) contains several things worthy of attention. Among other interesting and important discoveries, we meet with that of the three valves at the commencement of the *cæcum*, designed to prevent the retrogressive motion of the *forces*. Piccoluomini was the first to distinguish the cineritious from the medullary substance of the brain; and maintained that all the nerves originated in the *medulla oblonga*. To him we are indebted for the first delineation of the anastomosis of the *vena portæ* and *vena cava* within the liver, the first description of which, as we have already seen, was given by Berengarius.† Following the opinion of Galen he ascribes the possession of prostate glands to women. He gave the first description of that particular membrane of the fat which was afterwards named by Riolan

* *Anatomie, sive de resoluti: one corporis humani libri quatuor*. 8vo. Patavæ. 1573. A second edition was published, also in 8vo, at Frankfort in 1591.

† See page 62.

the *membrana adiposa*; and maintained that the peritonæum was every where double. He considered the *œsophagus*, *stomach* and *intestines* as forming but one continued canal from the mouth to the anus; and affirmed that the inner coat of the latter, from its corrugations, was three times longer than the external, and that the design of these corrugations was to detain the chyle, and facilitate its extraction from the fœces by the mesenteric veins. His description of the urinary tubes is much more complete than that of Berengarius or Massa, and the reason he assigns for the left spermatic vein, not arising from the emulgent, is precisely the same with that adopted by the moderns. Piccoluomini was a native of Ferrara, and a citizen of Rome. Besides the work of which we have spoken, he left a volume of *Anatomical Lectures*,* and *Commentaries* on part of Galen.†

We have already seen the gradual and close approaches which anatomical research was making towards the consummation of the grand discovery, that of the course taken by the blood from its first departure from the left ventricle of the heart through the medium of the arterial system, to its final return to the same spot, after traversing the remotest extremities of the body, through the medium of the veins, the right ventricle, and the pulmonary, or minor circulation. As the dawn gradually brightens with the approach of the brilliant orb of day, so did the facts bearing upon the doctrine

* *Prælectiones Anatomicæ*. Fol. Romæ, 1586.

† *Commentarii in Librum Galeni de humoribus*. 8vo. Parisiis, 1556.

of the great circulation, gradually concentrate themselves, until at length at the command of our illustrious countryman, the mysterious veil was forever removed, and the full blaze of the discovery was displayed in all its beauty and splendour to an admiring world.

We have already seen that the valves of the veins, which appear to have been placed there like the arrows employed by geographers in their delineations of rivers, to mark the direction taken by the stream, had been known to exist both by Arantius, and Cæsalpinus; but their structure and their use were not clearly demonstrated before the year 1574, little more than half a century before the first publication of Harvey's discovery; when Geronimo Fabricio, who is better known in the world by the name of Hieronimus Fabricius ab Aquapendente, and under whose instructions our illustrious countryman acquired that anatomical knowledge which has immortalized his name, gave the first satisfactory demonstration of their structure, and exhibited the first precise delineation of it in his engravings. But difficult as it must appear to us, with the information which this knowledge ought to have furnished, to avoid stumbling upon the truth—we find even the learned Fabricius, with the very key in his hand, unable to unlock the mysterious door; until his more gifted or, perhaps, more fortunate pupil, dissolved the charm, and threw the door which concealed the brilliant secret fully open to the world.

As the instructor of one to whom science is so deeply indebted, Fabricius is entitled to claim at

least the same portion of notice which has been accorded to his less distinguished predecessors; although the increasing number of claimants must necessarily contract the limits which can in future be spared to biographical details.

Fabricius, the instructor of Harvey, and the first demonstrator of the structure of the valves of the veins, was born of humble parents at the little town of Aquapendente in the district of Orvieto in Tuscany, in the year 1537; and, notwithstanding the poverty of his parents, was sent by them to Padua; where, in addition to the usual instruction in the classics, he studied Anatomy and Surgery under the celebrated Fallopius. Under his instructions he acquired a reputation equal to his master's, to whom he was appointed successor in the anatomical chair on his death in 1563, and continued to hold it with increasing reputation for nearly half a century; during the whole of which he uniformly maintained a high character for eloquence and erudition, and attracted a multitude of pupils.

Among the number of these was our countryman Harvey, who visited Padua in 1598, drawn thither by the interest his lectures excited, and the celebrity he had acquired. But the claims of Fabricius to respect did not rest upon the solitary basis of his learning, his talents, or his oratory; the benevolence and disinterestedness of his disposition established his reputation upon a more solid and durable foundation, in the esteem and affection of his fellow citizens; and his name was inscribed, by order of the Venetian republic, upon a spacious anatomical amphitheatre which they erected for his accommodation; conferring upon him at the same time an annual stipend

of a thousand crowns, with the honour of a statue, and creating him a knight of the order of St. Mark. Anatomy and Surgery were the objects to which he principally directed his attention, and on which his publications, an enumeration whereof will be found in the note,* were both numerous and important. His "*Opera anatomica*" contain an essay on the language of brutes well worth the attention of naturalists. The improvements which his thorough acquaintance with Anatomy enabled him to introduce into the practice of Surgery, and the consistent form which he gave to it, justly entitle him to the honourable distinction of the Father of modern Surgery. His "*Opera chirurgica*" which embrace every complaint curable by manual operations, was so much esteemed that it passed through no less than seventeen editions. It is said, but with what truth cannot be exactly determined, that he so offended his German pupils by ridiculing their manner of pronunciation, that they all deserted his school in

* 1. *Pentateuchus Chirurgicus*. Franc. 1592, containing five dissertations on tumours, wounds, ulcers, fractures, and luxations. 2. *De Visione, Voce et Auditu*, Venetiis, fol. 1600. 3. *Tractatus de oculo, visus organo*. Patav. fol. 1603. 4. *De Venarum ostiis*. Patav. 1603. 5. *De locutione, et ejus instrumentis*. Patav. fol. 1603. 6. *Opera Anatomica, quæ continent de formato fœtu, de formatione avi et pulli, de locutione et ejus instrumentis, de Brutorum loquela*. Patav. fol. 1603. 7. *De musculi artificio, et Ossium articulationibus*. Vincentia, 4to. 1614. 8. *De Respiratione et ejus instrumentis*. Patav. 4to. 1615. 9. *De motu locali animalium, &c.* Patav. 4to. 1618. 10. *De Gula, Ventriculo, et Intestinis Tractatus*. Patav. 4to. 1619. 11. *De Integumentis corporis*. Patav. 1619. 12. *Opera Chirurgica, in partes duas divisa*. Patav. 1618. 13. *Opera Omnia physiologica et anatomica*. Lipsiæ, fol. 1687. Also a complete collection of his works was published at Leyden in 1723 and 1737.

one day. Fabricius, after having raised the University of Padua to the highest pitch of reputation by his talents, died, universally regretted, at the age of 82, in the year 1619.

The discovery of the valve of the colon, formed by the inner membrane of the gut, and making the distinction between the smaller and greater intestines, was made by Salomon Albertus, Professor of Physic, at Wirtemberg, who published a volume of anatomy * for the use of learners, in the year 1583, in which he speaks of having first observed this valve, (the use of which is to prevent the regurgitation of the *fœces*,) first in a beaver, and afterwards in a man. ~

* *Historia plerarumque corporis humani partium, in usum tyronum*, 8vo. Wittebergæ 1583, 1602, 1630.

CHAPTER X.

Progress of Botany and Pharmacy during the Sixteenth Century.—Causes which formerly retarded Botanical improvement.—Travels and labours of Arguillara, Brunfels, Fuchsius—Conrad Gesner—his difficulties in early life—his zeal for the improvement of Botany—his Experiments on the Medicinal properties of Plants—Plan of systematic arrangement—Clusius succeeds to the pre-eminence in Botany on Gesner's death—Introduces the Laurel and Horse-chestnut—Cannarius founds a Medical College and Botanical Garden at Wirtemberg—Turner, Dodonæus, Casalpini—The latter attempts to execute Gesner's plan of systematic arrangement.—Bauderon publishes a Pharmacopœia—Bauhin, John and Gaspard, their improvements in Botany—Fabius Colonna—His researches into ancient Botany—Gerarde—Prosper Alpinus.

BOTANY, although regarded from the very infancy of society as a study of infinite importance on account of its administering to the wants, pleasures, and appetite of man, cannot be said to have been then prosecuted as a distinct science, or regarded otherwise than as the lovely, yet lowly hand-maid of medicine, hardly of sufficient importance to attract the notice of the sage, much less to merit the attention requisite for systematic arrangement. Yet we have the testimony of Homer for the fact of its being, even in those early days, esteemed as a high honour to possess an acquaintance with the medicinal properties of herbs. With the exception, however, of the casual introduction of the

subject by the Grecian Bard, we seek in vain, for information respecting the Botany of the ancients in any but the writers on Medicine; and even in the best of these the descriptions are so vague, and the histories so confused, that it is almost impossible, at the present day, to determine the plants of which they wrote by comparison with the living specimens. During the long and dismal eclipse which followed the overthrow of the Western Empire, knowledge of every description found an asylum at the courts of the Caliphs, where medicine, as we have already seen, was successfully cultivated by the Arabian physicians; but with the exception of adding senna,* cassia, fistula,† manna,‡ tamarinds,§ and a few other simples to the scanty *Materia Medica* of the age, they made no farther progress in botanical researches than their predecessors. When literature began to revive in the west, men naturally regarded the writings of the ancients as the depositories of nearly all the then existing knowledge, and hence naturally directed their attention exclusively to the examination and elucidation of these; since, previously to making any attempt at farther progress, it was necessary to ascertain the progress already made. Yet, however rational this idea appears, the manner in which it was applied to the study of natural history was injudicious, and its effects for a time pernicious. In vain did the student in Botany turn to the pages of Pliny, of Dioscorides, and Theophrastus, in the hope of determining existing

* Cassia Senna.

‡ Fraxinus O

† Cathartocarpus Fistula.

§ Tamarindus Indica.

plants from their crude, vague, and unintelligible descriptions, and much valuable time was lost in the idle attempt to identify among the productions of other regions, plants described by authors who wrote in Italy or in Greece. At length, a few minds soaring above the vulgar level, became convinced that the only page in which knowledge was to be found traced in characters which neither time nor climate could efface, was in that fair and lovely volume that nature ever offers to our notice.

From this period the science of Botany began to clothe itself in a new garb, and to assume a more enticing form. It was not, however, till the close of the 15th, and the beginning of the 16th century, that the science of Botany could be truly said to assume a consistent form, or shake off the accumulated cobwebs of nearly six thousand years.

The first whom we find distinguishing himself in the path of Botany during this century, is Louis Anguillara, who appears to have been the first Italian who perambulated Greece, Cyprus, Candia, Switzerland, and other countries, for the express purpose of perfecting himself in the knowledge of the properties of plants. In this he succeeded so far as to have been able, as Haller informs us, to correct the works of Dioscorides and Matthiolum. On his return he was appointed Curator of the Botanic Garden, at Padua, which post he retained till his death in 1550, leaving behind him a book on the knowledge of simples, written in Italian, and published in 4to. at Venice, by Murinelli, in 1561; a Latin translation of which, by Caspar Bauhin, was printed in 8vo. at Basil, in 1593.

Amongst the restorers of Botany who preceded the illustrious Gesner, was Otho Brunsfels, who, in the year 1531, published the two first volumes of his great Botanical Work,* which, however, was not completed before the year 1536, when the third and last volume made its appearance. In 1532 he published a Medical Common-Place Book,† in which he treated of the use of drugs; and in 1534 he published his "*Onomasticon Medicinæ*."‡ Few physicians of his age ranked higher than Brunsfels for professional skill, or general knowledge.

In 1542, Leonard Fuchsius, or Fuchs, a native of Wembling, in Bavaria, published his History of Plants, in which he chiefly copied Dioscorides, with the addition of a few remarks of his own: in this work we find him falling into the prevailing error of the age, in expecting to meet the plants of those fairer regions in which the ancients wrote, beneath the frowning skies of his own less favoured climate. Like Brunsfels, Fuchsius had early embraced the tenets of the reformation, and, finding his situation at Ingoldstadt uncomfortable on a religious account, he resigned his Professorship of Medicine, and removed in 1528, on the invitation of George, Margrave of Bareuth, (who settled a handsome salary upon him, and treated him with great respect,) to Onolezbach, where he was particularly successful in practice, especially in the

* *Herbarum vivæ icones ad Naturæ imitationem summa cum diligentia et artificio effictæ. cum effectibus eorundem.* Fol. Basil. 1-2. 1531-3. 1536.

† *Theses seu communes loci totius Medicinæ. etiam de usu pharmaceuticum.* Argentinæ, 1534.

‡ *Onomasticon Medicinæ, nomina continens omnium stirpium, &c.* Fol. Argentorati, 1534.

cure of the sweating sickness, which began to prevail in Germany, in 1529. While here, where he resided five years, he published a *Compendium*, or *Introduction to the practice of physic*; a Latin translation, accompanied with an ample commentary, of *The Sixth Book of Hippocrates*, and an *Apology against Triverius*, a physician of Louvain, recommending bleeding in the right side in pleuritis, and other inflammations of the viscera. In 1535, he accepted an invitation from Ulric, Duke of Wirtemberg, to settle at his University, at Tubingen, where the Duke wished to form an asylum for all who chose to shake off the papal yoke. Here, after a residence of thirty-five years, with great fame and success, he died on the 10th of May, 1566, in the arms of his wife, in his 65th year.

Conrad Gesner, to whom, before the days of Linnæus, Botany was principally indebted for reducing it into a systematic form, and establishing its principles upon a correct basis, was the son of a worker in hides, who fell in the Swiss wars; leaving Conrad, who was born at Zurich in 1516, in such poverty that he was obliged to go to Strasburg in the capacity of a menial servant. His master, observing his fondness for study, allowed him to follow his inclinations whenever he could dispense with his services; by which means he made such progress, that, having accumulated a little money, he went to Paris. There, having made himself master of the Classics and Rhetoric, he applied to the study of Philosophy and Medicine; but, finding his resources fail, he was obliged to return home,

and becoming a teacher, was so successful, that he was soon enabled to resume his studies at Montpellier, and afterwards take the degree of Doctor of Medicine, at Basil, in 1540; on which he settled in his native town, where he was appointed professor of Philosophy, the duties of which he discharged to the satisfaction of his fellow citizens for twenty-four years. He had, at an early age, imbibed a love for plants, from his maternal uncle, Friccius, and on his return to Zurich, after having taken his degree, the salary of his professorship, and the emoluments of his practice enabled him to prosecute his favourite pursuits. He founded and maintained a Botanic garden himself, in which he cultivated all the rare or valuable plants he could collect. He kept a painter and engraver constantly employed, and was a good draughtsman himself, to which circumstance may be ascribed the excellence of the figures he has left us, both with regard to the habit and fructification of the plants. He first discovered the necessity of dividing plants into classes, genera, and species, the distinguishing characters of each of which he took from the flower and the fruit. He prosecuted his researches in botany and zoology with a zeal never surpassed, and a discernment till then unknown. This zeal led him to make sundry laborious journeys in quest of plants, especially in the Alpine regions; and while he was, perhaps, the most learned naturalist of his own, or of any age, he rivalled the most experienced of his contemporaries in practical observation. To his inquiry into external characters he added a careful examination into the medicinal pro-

perties of plants ; and often endangered his own life or health in making experiments for the benefit of others. It was at one time reported and believed, that he had killed himself with a dose of two drachms of the root of *Doronicum* ; he recovered, however, and amused his friends with a history of the case. He at length fell a victim to the plague, which he caught in his professional attendance upon the sick, and terminated a life of active benevolence and scientific research in the arms of his wife, on the thirteenth of December, 1565, leaving behind him the well-earned character of having been the greatest naturalist since the days of Aristotle. His work "*De raris et admirandis herbis, quæ, sive quod nocte luceant, sive alias ob causas Lunaræ nominantur,*" 4to. printed at Zurich in 1555, is a curious little work, with wood-cuts, and gives a description of Mount Pilate, or Mons Fractus, the northern extremity of the Alps, which he explored that year, together with notices of some nondescript Alpine plants. His "*Historia plantarum et vires,*" a small 4to. was published, at Basil, in 1541: besides which, he left a large number of works, on various parts of natural history and botany. But his botanical remarks on the scientific arrangement of plants, which constitute his distinguishing merit, are chiefly dispersed among his letters, which were not published till after his death.

Charles Clusius, or more correctly de l'Ecluse, a native of Arras, in the French Netherlands, where he was born on the nineteenth of February, 1526, and a contemporary with Gesner, engaged with

the same ardour, but by no means with the same genius for the study, in the pursuit of botanical knowledge, and made attempts at a scientific arrangement of plants, which he distributed according to their size, habit, and sensible qualities. In 1576, he published an account of the rare plants which he observed in Spain,* embellished with above two hundred and twenty engravings of plants, admirably executed on wood. In several parts of this work he points out the fructification as of primary importance for determining the genera of plants—as Gesner had lately explained. This work may justly be regarded as a treasure of the vegetable productions of the southern parts of Europe. For the Alpine regions he furnished a similar work in his history of rare plants† observed in Pannonia, Austria, and the neighbouring districts, embellished with three hundred and fifty engravings on wood, of inferior merit, however, to those in the former work. They are both, however, very useful and commodious pocket companions for the travelling botanist. In 1601 they were both reprinted in folio, at Antwerp,‡ with considerable additions, consisting, among other things, of an ample treatise on *fungi*, some of Clusius's correspondence, and Ponas's account of Mount Baldus.—In 1598, at the age of sixty-eight, he was

* *Rariorum aliquot stirpium per Hispanias observatarum historia*, 8vo. Antwerp, 1576.

† *Rariorum aliquot stirpium per Pannoniam, Austriam, et vicinas quasdam Provincias observatarum historia*, 8vo. Antwerp, 1583.

‡ *Rariorum plantarum historia*, fol. Antw. 1601. This is the edition most frequently quoted by writers.

appointed to the botanical chair at Leyden, which he retained till his death. His third publication was his ten books of exotic plants,* &c., with numerous figures. This work is chiefly founded upon the observations of Garcias ab Orta, Acosta, Monardes, and Bellon, (intermixed with illustrations by Clusius himself, with an appendix on rare plants subjoined, which is entirely his own production,) and contained the first figure of the flower of the horse chesnut ever published. Clusius at length died, in his eighty-fourth year, on the fourth of April, 1609, having wielded the botanical sceptre, without a rival, from the death of Gesner, or for a period of nearly half a century. Though unpossessed of the systematic genius which constituted Gesner's chief excellence, Clusius was one of the best practical botanists of his age: discriminating plants in the happiest manner, and heightening the interest of his histories by innumerable remarks and anecdotes, which carry the reader along with him, and enable him to participate in his pleasures without encountering his toils or privations. To him we are indebted for some of the finest decorations of our gardens, and among them the *Prunus lauro-cerasus*,† and *Æsculus hippocastanum*.‡

Although much praise is due to Dr. William Turner, (an English contributor to the science of botany who flourished about this period, and published his "Herbal"§ in 1551,) for having given

* *Exoticorum libri decem*, fol. Antw. 1605.

† Common laurel. ; Horse chesnut.

§ *A new Herbal*, two parts, fol. Lond. 1551.

names to many English plants, and for his diligence in examining, and judgment in discriminating the different species—yet, in point of arrangement he retrograded to the worst days of botanical darkness, having disposed his plants according to no other analogies or affinities than those of the initial letters of their names in the order of the alphabet.

Joachim Camerarius, a learned and eminent physician of Nuremberg, where he was born in 1534, is the next candidate for fame in the field of botanical improvement: having not only established a medical college in the place of his nativity, in 1559, but formed an extensive garden for the cultivation of botany. With a view to disseminate and promote botanical knowledge, he published a work on botany and rural affairs* in 1577; and having purchased, methodized, corrected, and enlarged the collections of Gesner and Wolfe, he gave them to the world, in conjunction with the works of Matthioli,† in 1586: and in 1588 he published his *hortus medicus*,‡ in which he gave brief descriptions of a large number of plants, illustrated by many new figures. He had a few years before published a medical tract on the best means of escaping the contagion of the plague.¶ He died on the eleventh of October, 1598.

* *Operecula de re rustica*, quibus, præter alia, catalogus rei botanicæ et rusticæ, veterum et recentiorum, insertus est, 4to. 1577.

† *De plantis utilissimis*, Petri Andreae Matthioli novis iconibus et descriptionibus plurimis diligenter aucta, 4to.

‡ *Hortus medicus et philosophicus*, in quo plurimarum stirpium breves descriptiones, novæ icones non paucæ, continentur, 4to.

¶ *De recta et necessaria ratione præservandi a peste contagione*. 1583.

Of some value, but defective in arrangement, were the labours of Dodonæus, or Dodoens, who commenced with publishing his "*Historia frugum*," in 8vo. at Antwerp, in 1552, and in 1583 collected his various works into one volume divided into six parts, each of which being subdivided into five books, he denominated the whole "*Stirpium Historiæ sex Pempades*."

Andrew Cæsalpin, of Arczzo, in Tuscany, where he was born in 1519, was the first who began to execute the grand conceptions of Gesner, and who conceived the project of arranging all the plants which were then known in a regular system; taking for his distinctive characters the various forms of the fruit, modified occasionally by the consideration of other parts. This, although not the best in theory, is far from being destitute of ingenuity as a first attempt in a difficult undertaking: he particularly merits notice as the first writer who clearly distinguishes the sexes of plants. Cæsalpin imbibed his love of botany from Luke Ghinez, director of the botanic garden at Pisa, under whom he was educated. Having taken his degree of doctor of medicine, at Pisa, he obtained the professorship of anatomy and medicine there, which he retained for many years, and distinguished himself by his eloquence as a lecturer, no less than his skill as a dissector. Of his near approach to the great discovery of the circulation, notice has been already taken. Pope Clement VI entertained so high an opinion of his talents, that he invited him to Rome, where he made him his first physician. In his sixteen books of plants,*

* De plantis libri sedecim, 4to. Florentiæ, 1583.

he compares seeds to the eggs of animals, the seed serving to protect and nourish the embryo, or germ, till it had taken root. The value of this work is greatly lessened by the want of figures, and by its only containing the trivial names. In 1603 he published an appendix* to this work, which, with the former, constitutes the whole of his botanical writings. His herbarium of seven hundred and sixty plants is said to be yet in existence. His medical and philosophical works were infinitely more numerous. In his publication on the properties of medicines† he says, that he considers bleeding useful only at the commencement of fevers; and recommends clearing the stomach and bowels well out at the beginning of fevers of a putrid type. In his "*κατορρον*,"‡ he treats of the materia medica, fevers, syphilis, &c., and says much in praise of the efficacy of guaiacum in the cure of the latter complaint. Notwithstanding his acute understanding and extensive erudition, Cæsalpinus entertained some notions which we should hardly have expected to find in so great a philosopher, such as his idea, that men were engendered from putrid matter, and his admitting, with Aristotle, the existence of intelligent motive beings, in the celestial spheres. He died at Rome in his eighty-fourth year, on the twenty-third of February, 1603.

* Appendix ad libros de plantis, 4to. Romæ, 1603.

† De facultatibus medicamentorum, libri duo, 4to. Venetiis, 1593.

‡ *Κατορρον*, sive speculum artis medicæ Hippocraticæ, exhibens diagnosendos curandosque morbos, in quo multa visuntur quæ a clarissimis medicis intacta relictæ erant, 3 vols. 8vo. Lyons, 1601-2-3.

Pharmacy does not appear to have been prosecuted with any very great success during this century; for, being so closely connected with, and even dependent upon, both botany and chemistry, it necessarily partook of the imperfections of both; and neither of these sciences had as yet assumed a consistent form, or systematic character. Among the pharmacutists of the day, however, Brice Bauderon, a native of Charolles, merits notice for his acquaintance with this branch of medical knowledge. In 1588, he published a pharmacopœia, founded on the pharmacopœia Lyonnensis, with the observations of Catalanus on distilled waters. This book continued, for a long period, the standard work on pharmacy throughout France; and, being translated into Latin by Philemon Holland, was published in folio in London, in 1639: it has since gone through various editions both in French and Latin, but has long been obsolete from the great changes which botanical and chemical discoveries have made in pharmacy and the materia medica, during the last and present centuries. Bauderon practised physic at Maçon, where he wrote a work on the practice of medicine,* printed at Paris in 1620, when, as he tells us in the preface, he was eighty years of age, during fifty of which he had been in practice.

Among other contributors to the pharmaceutical knowledge of this period we should not omit

* Praxis in duos tractatus distincta: in priore agitur de febribus essentialibus, tam simplicibus, quam compositis, confusis, erraticis, magnis, ac pestiferis, et symptomaticis in genere et specie, curandis: in posteriore de symptomaticis et morbis internis a capite ad pedes usque, &c. Paris, 1620.

to notice Andrew Baccius, a native of Ancona, and Physician to Cardinal Ascanio Colonna, (afterwards Pope Sixtus V) who possessed great genius united to great industry, and, besides a work in folio "*De thermis, lacubus, fluminibus, et balneis totius orbis*," published at Venice in 1571, has left us a treatise on poisons and their antidotes, published at Rome in 1586, 4to. another on the dignity of the Theriaca, also in 4to., printed at Padua 1583, a folio volume on the natural history of Wines, on the Wines of Italy, and the banquets of the ancients, printed at Rome in 1596, and a small duodecimo account of gems and precious stones with their medicinal virtues and uses: popular superstition attaching an almost supernatural importance to such substances, either from their beauty or their rarity.

Among the writers on botany at this period, none distinguished themselves more successfully than the family of Bauhins; of whom John, who was born at Lyons in 1541, having evinced an early prepossession for this study, was, after the completion of his preliminary education, sent at the age of twenty, to accompany the illustrious Gesner in his botanical excursions through France, Germany, Switzerland, Italy, &c. In the course of these he made a most copious collection of plants, which constituted the basis of his great work,* which he had even then in contemplation, (as we learn from his correspondence with

* *Historia plantarum universalis*, 3 vol. Fol. Ebroduni, i and ii. 1650. iii. 1651.

Gesner,) although it was not published till after his death. On his return from these excursions, he settled at Basil, where he was elected professor of Medicine in 1566, but removed soon after to Yverdun, which he also quitted some time after for Montbelliard, on the invitation of the Duke of Wirtemberg, whose chief physician he was. Here he passed the remaining forty years of his life; not however confining himself exclusively to botanical pursuits, but extending his researches to almost every branch of Natural History. In 1591 his book on plants named after the gods or saints,* was published by his brother Gaspard at Basil; a small work, as Haller observes, but a sample of that which was to follow. The *prodromus*† of his great work, in the completion of which his brother in law Henry Cherler assisted, was published in their joint names at Yverdun in 1619, and contains the rudiments of a natural classification of plants. But it is upon his "*Historia plantarum nova et absolutissima, cum auctorum consensu et dissensu circa eas*," which he completed after the labour of forty years but did not live to publish, that his claims to the rank he deservedly holds among the improvers of Botany may safely rest; for, whatever may be its errors, (and many of these resulted no doubt from the incompetence of Dr. Chabre, the editor,) it is a

* De plantis a divinis sanctisve nomen habentibus. Basilæ, 1591.

† Historiæ Plantarum generalis Prodromus. Ebroduni, 1619.

noble work.—John Bauhin died at Montbelliard in the year 1613, at the age of seventy-two years.

His brother Gaspard, being his junior by twenty years, had the advantage of his experience to assist and direct him, and made in consequence a proportionally more rapid progress in the acquisition of knowledge. Having completed his preliminary studies under Fabricius, and other distinguished anatomists, at Padua, Montpellier, and Paris, and collected in his travels a multitude of plants which had eluded the penetrating search of his brother and of Gesner, he returned to his native city Basil, in 1580, when he took his degree of Doctor of Medicine, and was appointed two years after to the professorship of Greek. In 1588 he obtained the Professorship of Botany and Anatomy, and afterwards that of Medicine, with the appointments of Chief Physician to the city of Basil, Dean of the faculty of Medicine, and Rector of the University. He had previously published a Latin translation of Rousset's book in favour of the Cæsarean operation; adding to it a multitude of cases and observations, especially the history of a woman who had successfully undergone the operation, and a description of the valve of the colon,* to the discovery of which he laid claim; all which greatly enhanced the value of his translation. In 1596 he published his *Phyto-*

* This discovery to which Bauhin lays claim on the ground of having observed it before he had read any author who spoke of it, has been already noticed as belonging to S. Albertus.

pinax,* in which he gives a general enumeration of plants described from the specimens preserved in his Herbaria. Moreover, his edition of the works of Matthioli† in 1598, contains, as Haller observes, a considerable number of plants which had not been noticed before. His catalogue‡ of indigenous plants growing in the neighbourhood of Basil exhibits the largest collection of plants growing spontaneously in a single district. Besides his botanical works, which are very numerous, he published one on Anatomy, illustrated by a volume of plates, the latter of which are chiefly copied from Vesalius, while the former contains an account of several of his anatomical discoveries; especially of the contraction of the colon in the right side, which occasions obstructions to occur more frequently there than in other parts of the intestinal canal. He also published an anatomical inquiry into the structure of the parts of hermaphrodites and other monsters.

As a systematic writer Gaspard greatly exceeded his brother, in the magnitude of his conceptions, and extent of his services. His *Pinax* forms a new era in the science of Botany, and throws a fresh light on the subject, displaying at one view the information scattered through a multitude of works.

In the year 1592, a renewal was made of the

* *Phytopinax, seu Enumeratio plantarum ab herbariis descriptarum*, 4to. Basil, 1596.

† *Matthioli Opera quæ extant omnia*. Fol. Francf. 1598.

‡ *Catalogus Plantarum circa Basileam sponte crescentium*, 8vo. Bas. 1627.

attempt to determine the plants spoken of by the ancients, by a comparison of the living specimens with their vague and unsatisfactory descriptions, in a work* published by Fabius Colonna or Colonna, a descendant of the noble House of Colonna, who was born at Naples in 1567, and led early, as Boerhaave acquaints us, to the study of the works of Dioscorides, in the hope of discovering a cure for epilepsy with which he was troubled, but for which he is said to have found the application of a caustic to the thigh by Severinus, in 1630, a much more effectual remedy than all the simples described by Dioscorides. In this work, which was surprising for a young man at the age only of twenty-four, he has most accurately determined the character of *phu* or *wild valerian*, which is, as Haller says, the plant whose root Dioscorides recommended in epilepsy, and which Colonna took according to his directions for a long time with considerable advantage, but without effecting a cure. As a reviser and improver of Botany, Colonna is eminently entitled to the praise bestowed upon him by Haller; especially for the light which his labours have thrown upon the writings of Dioscorides, and the number of plants which he has described. From having first embraced the study of Botany through necessity, he continued it from inclination, and prepared for the press, in 1606, another botanical†

* *Plantarum aliquot historia, in qua describuntur Plantarum rariores antiquorum delineationibus respondentes*, 4to. Neapol. 1592.

† *Minus cognitarum rariorum que nostro cælo orientum*

work descriptive of the rarer plants of Italy, with a farther inquiry into those which correspond with the descriptions of the ancients: but though he wrote the dedication in 1610, he did not publish it for six years after. A second part soon followed. He now began to delineate the flowers, fruits, and seeds of plants, and to take the similitude of these parts as the basis of a systematic arrangement. In his Annotations on the work of Franciscus Hernandez,* he makes still greater advances towards that admirable system of classification which Linnæus afterwards so happily adopted; taking his characters from the similarity in the form of the petals, and exhibiting an acquaintance with the pistil and the stamina; thus affording the first dawn of that system which extricated botanical science from the mass of chaotic confusion that proved an almost insurmountable bar to its improvement, and substituting method, harmony and regularity, for absurdity, contradiction, and disorder. Thus we observe in the history of Botany as in that of the discovery of the circulation, the *penumbra* precedes the approach of the shadow, and the dawn comes to announce the day.

The works of Colonna were republished in 1744 by James Plaucus, accompanied with observations by the Lyncei, (a Society of Naturalists of which he had been a member,) with a biographical sketch of the author pre-

nitirpium, ecphrasis, qua non paucæ ab antiquioribus descriptæ disquiruntur et declarantur, 4to. Romæ, 1616.

* *Adnotationes et Additiones ad Opus Francisci Hernandez, et Nardi Antonii Recchi. 1627.*

fixed. As is a common case with persons who labour under a similar complaint, Colonna outlived all his faculties, and at length died at the age of eighty-three, in the year 1651.

Nearly the last writer of whom notice needs be taken during this century is John Gerarde, the author of the "*Herbal*,"* which was so long regarded as a standard work by the merely English botanist. The basis of this work was the "*Stirpium Historiæ sex Penptades*," of Dodonæus, already spoken of, and it exhibits a remarkable, although certainly fortuitous approximation to the more modern system of arrangement according to the natural orders. It is divided into three books; the first of which is devoted to the consideration of the grasses, grain, rushes, reeds, flags, and bulbs; this arrangement, however, was not the result of any examination of the structure of the seeds, or any regard to the number of cotyledons, but solely of the consideration of the simplicity of their leaves, and a certain similarity in their general form. Hence the resemblance to the natural system is merely apparent, being as strictly artificial as the sexual system of Linnæus. The second book contains most of those plants which minister to the wants or gratifications of man, as those, for instance, which contribute to the supply of the table, the purposes of pharmacy, or to the decoration of the garden: while the third exhibits a motley group of all the *omissa* in the two first; being a

* The Herbal or General History of Plants. fol. London, 1597.

miscellaneous assemblage of forest trees, shrubs, fruit bearing plants, whether arborescent or herbaceous, resins, gums, heaths, mosses, mushrooms, and marine plants, cryptogamic and phænogamic, arranged without the slightest regard to habit, analogy, form or resemblance.

Such was the celebrated Herbal of John Gerarde, which is still highly prized by the collectors of biblical rarities, although as a book of science it is utterly worthless. John Gerarde, its author, who was born at Nantwich, in Cheshire, in the year 1515, was, if we believe Grainger, chief gardener for many years to the celebrated Lord Burleigh, minister to Queen Elizabeth, who was much attached to the cultivation of plants, and possessed the first collection of exotics in England, many of which were introduced by Gerarde. But whatever credit may be due to Grainger's account of his having filled so menial a situation, Gerarde is well known to have been a surgeon of considerable eminence, talents and erudition, residing in Holborn, in the days of Elizabeth, and having an extensive botanic garden of his own; of which he published a catalogue in 1596,* now become so rare, notwithstanding his having re-printed it in 1599, that scarcely a single copy is known to exist, besides that in the British Museum,—which is highly valuable as furnishing an authentic account of the plants at that time in cultivation in England, and was of great use to Mr. Aiton in fixing the date of the introduction of many old plants.

* *Catalogus Horti Johannis Gerardi*, London, 1596.

This catalogue contains 1,033 distinct species, or what were then regarded as such; although many were doubtless only varieties; and an attestation is subjoined, signed by that eminent botanist Lobel, stating that he had seen nearly the whole of the plants named in the catalogue, growing and flowering in Gerarde's garden. As a catalogue of the contents of one of the earliest botanic gardens in Europe, this work is highly curious, and, being so extremely rare, should be reprinted before time or accident has robbed us of the only copy almost which is known to exist, and of which a reprint would form an appropriate companion to the valuable catalogue of the royal collection at Kew. Gerarde, although by no means capable of vying with Lobel in point of erudition, contributed much to the improvement of botany in England, not only by the introduction of numerous exotics, but also by promoting the discovery of indigenous plants unknown before, and awakening a taste for the refined and beneficial pursuits of horticulture among our rude and unpolished ancestors. Hence the name of Gerarde will be remembered by every British botanist with respect, long after his Herbal has ceased to exist. From a learned historical preface, prefixed to a second edition of the Herbal in 1636, published by Doctor Thomas Johnson, (who amended many of its errors, and added largely to its contents,) we learn that Gerarde survived the publication of the first edition about ten years, and closed his existence in 1607.

Before we enter upon a new century, gratitude to another of the restorers of botany, to whose

labours both botanical and medical science are deeply indebted, forbids the name of Prosper Alpinus, or Prospero Alpini, a contemporary with our countryman Gerarde, to be passed without notice, or noticed without respect. Alpinus was the son of a physician, and junior to Gerarde by about eight years, having been born at Marostica, in the state of Venice, in 1553. He commenced life as a soldier, but, preferring the gown to the sword, and the temple of Æsculapius to the field of Mars, exchanged the army for the university, and commenced a course of medical studies at Padua, where he took the degree of doctor, in 1578. Attached to botanical pursuits, and desirous of studying the plants, as well as the diseases and manners of other countries, he obtained in 1580, through his father's interest with the Senate, an appointment to attend the Venetian Consul to Egypt, where he remained three years, during which he devoted himself with ardour to the study of plants, as well as the medical practice of the inhabitants—of both which he gave an interesting and valuable account after his return, in his book on the plants of Egypt,* (in which he set the example of making the first attempt at explaining the fructification of plants upon scientific principles,) in his dialogue respecting the celebrated Balm of Gilead,† and in his four books on the state of Medicine among the Egyptians; ‡ a

* De plantis Egypti, libri tres, 4to. Venetiis, 1592.

† De Balsamo, Dialogus. Facc. 4to. Venetia, 1592.

‡ De Medicina Egyptiorum, libri quatuor. Venet. 1611.

work abounding in ingenious and interesting information respecting the diseases prevalent among the inhabitants, and the methods of treatment, both medical and surgical, which were in use among them. Among other remarks which are contained in this work, we find that the practice of employing opium for the purpose of intoxication, so prevalent even at the present day among the nations of the East who profess the religion of Mahomet, has not escaped his notice ;* nor has he omitted to mention the state of faintness and languor to which the abuse of this narcotic reduces those who have recourse to it, and from which they are to be roused only by the exhibition of the most potent aromatics. Such was the reputation acquired by Alpinus, that, on his return to Italy in 1586, he was appointed physician to Andrew Doria, Prince of Melfi at Genoa, from whence, as his fame increased, he was recalled by the Venetian Senate, and appointed professor of botany, and curator of the physic garden at Padua. These appointments he retained till his death in November 1616, when he was succeeded by one of his sons, who had probably been his assistant in lecturing, as he became extremely deaf and infirm some years before his death.†

* De Med. Egypt. lib. iv. cap. i.

† Besides the works mentioned in the text, Alpinus wrote "*De Rhapontico, Dissertatio Inauguralis*:" "*De Plantis exoticis*:" "*De præsignanda vita et morte agrotantium*," published in 1601, and consisting chiefly of a collection and arrangement of the prognostics of Hippocrates: and "*De Me-*

On looking back to the history of the sixteenth century, and comparing it with the long series of ages which preceded it, the mind is forcibly struck with the vastness of difference between them; the faculties of man appear as if suddenly and violently awakened from an oppressive and preternatural torpor, which had long enchained them, to the due exercise of their functions; man appears comparatively as though but just created, and sent for the first time into the world with the Almighty fiat from his benevolent author, to see, to enjoy, and to understand. All the knowledge of the ages gone by appears but as empty visions of childish speculation, or superstitious delusion. To what are we to attribute this mighty, this almost incredible change? this sudden emersion from the most profound eclipse, into the rapid dawning of a brilliant day? to what, but to those two great events, which shook the empire of darkness to its very centre, and dissipated the phantasies of ignorance before the light of knowledge?—to the discovery of the art of printing, and to its necessary result, the revival, or rather the new birth of letters; and to the emancipation of the human mind from the shackles of a gross and corrupting superstition. These were the glorious events which marked the close of the fifteenth century, and whose effects began to appear in the sixteenth: the seed was sown, but it remained for the seventeenth,

divina methodica," published in 1611, in which he endeavours to explain and revive the obsolete doctrines of the Methodist sect.

eighteenth, and nineteenth centuries to reap the rich and productive harvest. In the sixteenth century, likewise, we observe the infant germs of some of those vast discoveries, that have since added so much to the utility as well as the splendour of science, hastening to maturity, and preparing for their approaching development.

CHAPTER XI.

Progress of Medicine and Surgery during the seventeenth century—Cantharides recommended in Disorders of the Urinary Organs, by Baronius—Account of a peculiar Worm Fever at Imola by Codronchus; and of a Pleurisy with a typhoid character at Padua, by Colle—Van Helmont opposes the system of Galen, and substitutes the Chemical Practice—Cista Medica—Baronius's Account of the Peripneumony of 1636—Case of Aneurism—Royal Society—Controversy respecting Peruvian Bark—Bados—Chiffle—Malignant Fever in Sicily—Guy Patin—Sylvius' Theory of Morbid Action—Chamberlen's Obstetric Forceps—Borri, an Impostor—Introduction of Male Accoucheurs—Julian Clement—Arsenic a remedy for Cancer—Sydenham—Transfusion of Blood—William Cole an advocate for the use of Bark—Archer—Buchoff introduces burning with Moxa, in Gout—Blasius—James Young of Plymouth—Blancard—Petrified Child—Bellini, his Description of Catalepsy—Boerhaave—Amman—Colbatch—Baglivi—Cyprian—Breudel.

RAPID as we have seen the advance made in the acquisition of useful knowledge to have been since the emancipation of the human mind from the trammels of superstition, and the impulse which the newly discovered art of printing gave to the diffusion of knowledge during the sixteenth century—the further we descend the stream of time, the more forward do we find the march of improvement, the more rapidly do we observe the crops mellowing

for the harvest; and the state of medical knowledge will be found, at the close of the seventeenth century, nearly as much in advance of the point at which we have just left, as that point was beyond the state in which the celebrated school of Salerno found it in the eleventh century.

Early in this century the town and vicinity of Imola were visited with a febrile affection which appears to have been produced by worms, of which an account has been given by Baptiste Codronchus, an intelligent physician of that place, in a work published at Bologna,* in 1603, wherein he observes that the only relief to be obtained was from the expulsion of a worm, differing in appearance from those which are ordinarily found to infest the abdominal viscera. As he has not given any farther description of this worm, it would be difficult to determine how far his opinion of its being distinct from the ordinary worms of the intestines was correct, although the probability is that, from the locality of the complaint, and its not having been observed in any preceding or succeeding year, the worm which produced it had originated from ova peculiar to the waters of that place, and more plentiful than usual in that year.—Codronchus was the author of several other ingenious medical works, which will be found in the list of those recommended by Boerhaave, in his "*Methodus studii medici*." Among these were

* De morbis qui Imole et alibi communiter anno 1602 vagati sunt Commentarius, in quo potissimum de lumbricis tractatur, et de morbo novo, proinsu nempe cartilaginis mucronate, 4to. Bononiæ, 1603.

one on a safe and christian mode of curing disease,* with a tract subjoined on the *Cocculus Indicus*, and antimony, published near the close of the last century. These berries, which are obtained from the *Cocculus lacunosus*,† a climbing shrub growing on the rocky shores of Celebes and the Moluccas, are employed by the inhabitants of the regions in which they grow, to intoxicate fish and birds. In this country brewers have had the credit of employing them in the manufacture of their beer, in order to communicate to it an intoxicating quality, without the necessary expenditure of malt. Since, however, in an overdose they might prove destructive to life, their use has been prudently prohibited by law. In medicine, however, they might perhaps be advantageously substituted in many forms for opium, in cases where the exhibition of that drug is either questionable or inadmissible. Besides these, Codronchus wrote a treatise on poisons and their antidotes; on diseases produced by witchcraft, in the reality of which he believed; on hoarseness and other affections of the voice; on hydrophobia, of which he

* De christiana et tota medendi ratione, cum tractatu de bacis orientalibus et antimonio, 4to. Ferrara, 1591.

† De Cand. Syst. Nat. vol. 1. p. 519. It is from the root of another species of this genus, the *Cocculus palmatus*, (De Cand. l. c. 522) that *calumbæ* or *eslumbo*, one of the most valuable of our stomachic bitters, is obtained. The *C. palmatus* is a climbing plant with a perennial root and annual stem, frequent in the shady woods of the eastern coast of Africa, between Obo and Mozumbo, where it is regarded as a specific in the cure of Dysentery, and Diarrhœa, a fact noticed by F. Redi, and J. Curvo Semmedo about the middle of this century.

had seen several cases ; and on the use of hellebore in medicine, which he commends highly and advocates strongly.

The second publication of merit which attracts attention in the century we are treating of, is a quarto volume on affections of the urinary organs,* written by Theodore Baronius, a physician of Cremona, who recommends the internal use of cantharides in such affections, (a practice which it is probable Greenvelde learned from him) ; he also adopted the plan of curing calculous affections by means of lithontriptic liquors injected into the bladder. Baronius was a strenuous defender of the doctrines of Galen, maintaining that it was more honourable to err with him, than to reason ever so correctly upon any other system: fortunately, however, he did not suffer this blind and irrational bigotry to mislead him in the path of practice, in which we find him frequently deserting his guide when he would have led him into error.

The city of Padua, so distinguished for its University, and the eminent talents of its several professors, in the various departments of Medical Science especially, was visited in 1610 by a pleurisy, which appears, from the account given of it by John Colle, professor of physic there, to have partaken of the typhoid character, since it did not admit of general depletion of the system by bleeding at the arm ; but readily gave way under a course of local bleeding, accompanied by a suffi-

* *De operationis morandi triphlei lisione et curatione, libri duo, in quibus morbi renum et vesicæ, ex Galeni præsertim mente, pertractantur*, 4to. Cremona, 1609.

cient solubility of the bowels, produced by the use of mild purgatives and occasional glysters. In a work on the practice of Medicine,* which Colle published a few years after this visitation, he gives a history of epidemic diseases, wherein he includes an account of this pleurisy. In the year 1621 he published another work,† dedicated to Cosmo II, in which he lays down a very rational system of medicine, and makes many excellent practical observations; and, in 1628, he published a treatise on Syphilis, in which he gives a concise history of the complaint and its symptoms, and lays down a plan of cure, consisting in the use of mercurial ointments and fumigation. Colle was a native of Belluno, where he was born in 1558, and, having studied medicine at Padua under Cappivaccius, and taken the degree of doctor in 1584, settled at Venice; whence, after practising fifteen years, he removed to Padua on his appointment to the medical chair. He was a voluminous writer, and author of many more works than have been now noticed. His death took place at Padua in 1631.

About this period the revolution which Paracelsus and his followers had commenced in the practice of Medicine, by the substitution of the chemical for the Galenical school of Medicine, may be considered as having attained its comple-

* *Medicina practica, sive methodus cognoscendorum et curandorum omnium affectuum pestilentium*, fol. 1617.

† *Cosmutor medicus triplex, in quo exercitatio totius artis medicæ devisa, ac consultationes medicinales et quæstiones practicæ proponuntur*, fol. Venetis, 1621.

tion under the daring lead of the celebrated John Baptist Van Helmont, (the descendant of an illustrious family at Brussels, where he was born in 1577,) who in 1621 published his first work* in support of the supposed property of the magnet in healing wounds.

Van Helmont appears to have exhibited early proofs of genius, and to have made such proficiency in his elementary studies that, by the time he had attained his seventeenth year, he had gone through the usual courses of philosophy at the university of Louvain; during which process he had discovered how much hypothesis, and how little real knowledge were contained in books of what was pompously called science. Such was his ardour in the pursuit of knowledge that he is said to have gone through the works of Galen twice, and of Hippocrates once, together with nearly the whole of the Greek and Arabian writers on Medicine, and to have made copious observations upon them—before the completion of his twentieth year. He appears to have formed a vague idea of the importance of experiment and induction as the only legitimate sources of solid information: but he does not seem to have methodized his ideas on the subject sufficiently to pursue that plan with full effect. Having taken his doctor's degree at Louvain, and being wearied with the unsatisfactory search after knowledge in the

* *De Magnetica Vulnerum naturali et legitima curatione, contra Johannem Roberti Soc. Jesu Theologum, 8vo. Paris, 1621.*

pages of authors, he commenced a course of travels for two years, during which he gave himself up, with the same zeal which he had formerly devoted to the study of books, to the instructions of men who pretended to an acquaintance with magic and philosophy, and obtained a smattering of chemistry from an illiterate man upon whom he stumbled in the course of his rambles. Having in 1609 married a lady of good family, and large fortune, he retired to Vilforde. There he prosecuted his researches into the products of nature without interruption. There, too, the empirical knowledge he had acquired of the properties of several chemical remedies, recalled his attention to professional practice, of which he had so long lost sight; and though he confined himself to giving advice to such as called upon him at his residence, and took no remuneration for his prescriptions, his advice was solicited by multitudes, and he boasts in his works of having cured many thousands annually. In this manner he devoted his time for the space of thirty years to the calls of humanity, and to researches in the laboratory; in the prosecution of which last he necessarily made a considerable number of important discoveries in chemistry, among which may be reckoned the spirit of hartshorn, the spirit of sulphur *per campanum*, as it was then called, and the volatile constituent* of the Spa waters, which he first named *Gas*, from the German *Geist*, that signifies *Ghost* or Spirit. Among the various new substances, or

* Carbonic acid gas.

new modifications of substances already known, which Van Helmont thus made, there were many which exerted a powerful influence over the animal economy, and exhibited a manifest superiority over the inert simples adopted in the Galenical practice. This served to strengthen his former prejudices against the doctrines of that school, which he in consequence attacked with renewed vigour, and considerable strength of argument, and at length completely overthrew. In his treatise "*De Humoribus Galeni*," he pointed out the gross absurdity of the Galenical hypothesis of the four elements, the four qualities with their four degrees, and the four humours, all of which he shows to have been perfectly gratuitous, and unsupported by a shadow of evidence; and he exposed the errors of the practice founded upon such unsubstantial and even fallacious assumptions. Attempting, however, like Paracelsus who preceded, and John Brown who followed him, to generalize the undigested mass of facts which he had accumulated, and reduce the whole of Medicine to a few chemical principles, he substituted a jargon as unintelligible, and theories as visionary as those which he had succeeded in expelling. He however acquired at the time considerable reputation by the numerous works which he published, and the discoveries in chemistry which he made; and his doctrines continued for a long time to preponderate in the schools of Medicine. His works are now, however, regarded only in the light of curiosities, containing a strange admixture of shrewd conjecture and absurd jargon, the

germs of many valuable discoveries buried beneath a mass of ignorance and rubbish. Some of his opinions may be found under new modifications in the speculations of later writers, and we can recognize his *Archæus* in a more refined form in the *Vis Medicatrix Naturæ* of Hoffman and Cullen, while Sylvius and his followers adopted his theory of fermentations almost without alteration. To chemistry his services were of the greatest value, and he contributed largely by his labours to prepare the way for modern discoveries. He died in his sixty-fourth year, on the 30th of December 1644.

In 1626 John Hornungius, Doctor of Philosophy and Medicine, and Chief Physician to George Frederick, Marquis of Baden, &c. published a collection of Medical Letters* written by some of the most distinguished men of the age upon those subjects in which they each excelled. Among them are eight written by Gaspard Bauhin, chiefly on subjects connected with Botany, and three, concerning matters in pharmacy, from the celebrated Caspar Hoffman, professor of Medicine at Altdorff. Among the mass of facts which this curious volume contains, will be found several interesting particulars; but it is chiefly valuable for the light it throws upon the general state of Medical Science in Germany at the period of its publication.

* *Cista Medica*, in qua Epistolæ clarissimorum Germaniæ medicorum familiares et in re medica, &c. asservantur, 4to. Norbergæ, 1626.

Vincentine Baronius, a physician of Italy, published in the year 1636, an account of a peripneumony* which was epidemic during that year, possessing very considerable merit. His description of the complaint is full and accurate, and displays great pathological judgment: he details with clearness and precision the plan of treatment which he found to be most successful, and gives a minute description of the *post mortem* appearances on dissection. This epidemic was attended with cough, pain in the chest, dyspnoea, fever, and inextinguishable thirst. When expectoration took place early in the complaint, especially after bleeding had been carried to a due extent, the case most commonly had a favourable termination. In those cases which terminated fatally, the lungs were always found to be in an inflamed state; and serum was occasionally found poured out into the cavity of the chest.

The history of a case of aneurism recorded by Thomas Bartholine in his "*Anatomica Aneurismatis dissecti historia*," published in 1644, furnishes too instructive a lesson to surgeons to be passed without notice. It was a tumour in the leg which Antonius Vacca pronounced to be an aneurism; but the majority of opinions being against him, it was treated as an abscess, which occasioned an extension of the tumour to the toes, accompanied by gangrene, obliging them to amputate the foot

* De Peripneumonia, anno 1636, et aliis tempestativis Maxima et aliasque regiones populariter infestante, ac nequius hactenus observata, Libri duo, 4to. Forolyni, 1636

above the ankle, to stop the progress of mortification. On the third day after, they attempted to open the tumour, but the patient died under the operation. Although the artery was dilated to six times its natural size, the part next the skin was eroded and broken, and a mass of grumous blood, almost equalling the consistence of flesh, was found extravasated between the bellies of the gastrocnemius muscle. A nearly similar case is recorded by Freind as having occurred at St. Bartholomew's.

About the year 1645, Francis Glisson, who was Regius Professor of Physic at the University of Cambridge, (and a skilful anatomist as we shall presently see,) along with a select number of professional and other scientific friends, held weekly meetings in London for the purpose of discussing philosophical and other scientific subjects; these meetings, from consisting at first merely of a few friends chiefly of the medical profession, gradually increased in the number of their members, and the regularity of their proceedings, until at length, after the Restoration, the members were incorporated into an organized body by Royal Charter under the title of the Royal Society. Glisson, who was one of the founders and original members of this society, had been appointed reader of Anatomy to the College of Physicians of which he was a fellow, and obtained much credit by his lectures "*De Morbis partium*," which he published at the request of his colleagues. During the civil wars he went to practice at Colchester, where he resided at the time of the siege in 1648. In 1650 he published his

Treatise on Rickets,* which bears marks of sound professional judgment, and careful practical observation. His largest work† was one of a metaphysical character remarkable for the profoundness of its reasoning, and the depth and labour of its researches; it appeared in 1672. His anatomical works and discoveries will be noticed in their proper place.

Peruvian bark, which had been recently introduced into the cure of fevers in Europe, encountered, like every other novelty, whether beneficial or otherwise, considerable opposition both from the faculty and public opinion generally. Among those who took part in the controversy, thus occasioned, was Sebastian Badus, or Baldus, a native of Genoa, who was one of its most strenuous advocates,‡ and among the earliest writers in its favour. Badus had learned from a merchant of Genoa that the tree from which the bark was obtained grew in the neighbourhood of Quito; and

* *Tractatus de Rachitide, seu morbo puerili Rickets dicto.* Lond. 1650.

† *Tractatus de Natura Substantiæ energeticæ, sive de vita Naturæ ejusque tribus primis facultatibus.*

‡ *Cortex Peruvianus redivivus, contra Plempium.* 12mo. Genue, 1646, and *Anastasis Corticis Peruvianiæ seu Chinæ defensio contra ventilationem J. Jacobi Chifflet,*(a) et gentius V. F. Plempii. 4to. Genue, 1663.

(a) John James Chifflet, a native of Besançon, where he was born on the 12th of January, 1588, and a physician of considerable reputation, was a strenuous opposer of the use of bark, against which he published a work in 1653 which he entitled "*Pulvis febrifugus orbis Americani ventilatus.*" 4to. Lorraine, 1653: in which he strongly condemns the exhibition of this medicine, and says that intermittents stopped by it, not unfrequently return with increased severity.

that it first acquired its celebrity and its name from having been employed in the cure of the Countess of *Cinchon*, when labouring under a severe intermittent, and after her was called *Cinchona*. Badus is extremely diffuse in his account of the cinchona, explaining at considerable length its properties, and the best forms of exhibition, and giving instances of its success in the cure both of intermittent and continued fevers. The works of Badus were for the most part of a controversial character. He appears to have been a strong advocate for bleeding, which he recommended even in exanthemata.* He spent the latter part of his life at Rome under the patronage of Cardinal de Lugo, who was himself a great admirer of bark, and had procured a considerable supply from Spain in 1649.

About the same time Gaspard Bravo of Aguilar Campo in old Castile, who had been physician to Philip IV of Spain, and to the Inquisition, published a variety of works in which he treated largely of the physiology and pathology of fever, the curative effects of bleeding, purging, and sudorifics, together with the newly introduced Peruvian bark. Bravo was a graduate in medicine of the University of Valladolid, where he afterwards became a teacher of medicine and surgery. In his consultations he gives an account of the complaint which proved fatal to Philip, with the manner of his death in 1665.

* Sanguis expiatus, seu de sanguine incalcescente. *Genue*, 1663. *Necessitas Phlebotomiae in Exanthematibus*. 4to. *Genue*, 1663.

During the years 1647 and 1648, the Island of Sicily was nearly depopulated by the ravages of a malignant fever of which an account has been preserved by John Alphonso Borelli,* a native of Casteluovo, in the kingdom of Naples, where he was born on the 28th of January, 1608. Borelli having been sent to Rome to complete his education under Castelli, made such rapid progress in his studies, that he was invited at an early age, by the inhabitants of Messina, to visit Sicily as a teacher of mathematics, his studies having been directed to that branch of science no less than to medicine: by this means he became a resident in that island during the period at which this destructive epidemic prevailed, and enjoyed the most favourable opportunity for observing its progress, describing its symptoms, and deciding on the most judicious method of treating it, the result of which he has given in the volume cited in the note. Disgusted, at length, with his employers, Borelli quitted Messina in 1656, and accepted a Professorship at Pisa, where his lectures met with the greatest success, and he so ingratiated himself by his talents with the Grand Duke Ferdinand and Prince Leopold, as to succeed, through their interest, in gaining his election to a seat in the *Accademia del Cimento*. Here it was, in all probability, that he first conceived the design of accounting for the several functions of the animal economy upon mathematical principles, for which purpose he now applied with the utmost diligence

* Delle ragioni delle Febri maligni di Sicilia. 12mo. Coscuza, 1649.

to the task of dissection, on which subject he wrote several letters. These may be found in Malpighi's posthumous works. In 1658 he published a second treatise on the Nature and Treatment of malignant Fever, in quarto, at Pisa. Of his anatomical and physiological labours farther notice will be taken in the chapter appropriated to those branches of our subject. Borelli, in addition to his professional skill, appears to have made considerable proficiency in other departments of knowledge, and was the inventor of a diving bell, in which it was possible to descend to great depths under the surface of the water, and move about, rise, or sink lower, at pleasure. He is also said to have constructed a boat in which one or more persons might row themselves about under the surface of the water. At length, being supposed to have favoured the revolvers in an insurrection at Messina, he was obliged to quit the Neapolitan dominions, and, on an invitation from Christiana, Queen of Sweden, removed to Rome, where she resided, and where he passed the remainder of his days. He does not appear, however, to have derived much pecuniary advantage from the royal favour, since we find him, in the latter years of his life, obliged to procure a scanty subsistence by teaching mathematics at the Convent of St. Pantaleon, where he died of an attack of pleurisy, in the 72d year of his age, on the 31st of December, 1679.

About this period the celebrated Guy Patin, a physician no less distinguished for his learning than his wit, was elected dean of the faculty at Paris, and soon after succeeded the younger

Riolan, in the chair of medicine at the Royal College. He was the son of parents in humble life and contracted circumstances, residing at Hodene, near Bray, in Beauvais, where he was born in August, 1601. Being employed as a corrector of the press, in a printing-office at Paris, he had the good fortune to form an acquaintance with Riolan, a physician of eminence and ability, who, discovering the superiority of his talents, induced him to turn his attention to medicine. In this faculty he took the degree of Doctor, in 1627, and was admitted a member of the Parisian body. He continued after this to reside at Paris, where he obtained more celebrity by his wit, than emolument by his practice, being of too proud and too independent a spirit to fawn upon the great, or pander to the appetites of the low. He acquired, notwithstanding, the friendship of many persons eminent for their rank, and distinguished for their talents, especially the President Lamoignon, who enjoyed his society as a relaxation from the fatigues of public business. Such was the fluency and elegance of Patin's delivery in Latin, that his theses formed a centre of attraction for all the fashionable triflers of the French metropolis. He was a zealous defender of the honours and privileges of his faculty, and a strenuous opponent of all innovations in medical practice, and, above all, of the doctrines and drugs introduced by Van Helmont, and the chemical school of physicians. In consequence of this aversion from novelties, he entered warmly into the dispute, which at that time disturbed the tranquillity of medicine in Paris, respecting the medicinal properties of anti-

mony; he even descended to personalities in his attacks upon those who advocated its use, and drew up a long list of unsuccessful cases in which it had been employed, which he termed the *Antimonial Martyrology*. But, if he was opposed on the one hand to the preparations of the chemists, he was no less so, on the other, to the prolix and heterogeneous formulæ of those who still adhered to the old and now almost unfashionable system of Galenical practice; justly conceiving that the judicious employment of the lancet, along with the seasonable exhibition of purgatives, and a few simples, was capable of effecting more substantial good in practice than all the laboured and complicated prescriptions of the physicians. Patin appears to have projected, but without executing, a biographical history of the more distinguished physicians; which it is to be regretted that he never undertook, since, from the accounts we have of his wit, no less than his erudition and judgment, there can be little doubt it would have proved an amusing no less than an instructive volume. His letters, which were collected and published after his death, are equally distinguished for the correctness of their sentiments, and the curiosity of their remarks.

Patin died in 1673, at the age of 71, leaving a son, Charles, who was equally distinguished for his learning and talents, both as a physician and antiquary, but who, although a voluminous writer on other subjects, has contributed little from his pen to the stock of medical knowledge; few out of the forty different works in French, Italian, and

Latin, which he left behind him, being upon professional subjects, and these, with the exception of the lives of the professors at Padua,* consisting chiefly of detached treatises, such as "*Oratio inauguralis de optima medicorum secta.*"—" *Oratio de Febribus*"—" *De Avicenna*"—" *De Scorbuto*, &c." Having, after travelling for some years, settled with his family at Padua, he was appointed there to an extraordinary professorship of medicine, whence he was transferred in 1681 to the first chair in surgery, and, ultimately in 1683, to that of medicine, in all of which he discharged his duties in so distinguished a manner, that he was promoted by the Republic of Venice to the rank of a knight of St. Mark. He died at Padua on the 2d of October, 1693, leaving a wife and two daughters, who were all distinguished for their learning and abilities.

A circumstance occurred about the middle of this century which, notwithstanding the great improvements made in other departments of medical knowledge, tended materially to impede the progress of correct pathology. This was the introduction of the hypothesis of Sylvius,† who, adopting with some slight modifications the

* *Lyceum Patavinum, sive Icones et Vitæ Professorum Patavi, anno 1682, docentium.* 4to. Patav. 1682.

† Francis de la Boë Sylvius was descended from a good family at Hamau, where he was born in 1614, and, after the usual school education, went to Basil. There, having studied medicine, he took the degree of Doctor, in 1637. He then visited the principal Universities of France and Germany, for the purpose of improving himself in Anatomy and Pharmacy. On his return he settled at Hamau, whence he removed to

chemical opinions of Van Helmont, accounted for every morbid action which takes place in the animal economy, upon the supposition of its being the result of chemical changes produced in the system by the preponderance of an acid or an alkali, upon the neutralization of which he imagined the whole of the cure to depend. Influenced by such fallacious reasoning, and shutting his eyes to the obvious and rational indications of cure furnished by the symptoms of the disease, Sylvius commenced his attack by the exhibition of ammonia, absorbent earths, and cordials, or acids and refrigerants, accordingly as he imagined the acid or the alkali to predominate in the system. The extent to which this doctrine, (founded, as it was, upon the most gratuitous and unsupported hypothesis, and hence frequently productive of the most calamitous results,) spread over Europe, appears surprising, and the interruption which it gave to the improvement of medical practice and pathology was considerable. Indeed it is hard to say whether Sylvius did more to promote the cause of truth by his advocacy of Harvey's doctrine of the circulation, or to impede it by his own rash and pernicious theory; and, it was, in fact, one of the great benefits which Sydenham con-

Amsterdam, where he became celebrated for his talents, and continued, till appointed in 1658 to the first professorship of Medicine at Leyden, a situation eminently calculated to rouse his genius and his eloquence, by means of which he soon attracted crowds of pupils. He was one of the earliest advocates of Harvey's doctrine, and of the means of its adoption at Leyden; his writings were chiefly controversial, and have been long consigned to oblivion. He died in 1672, at Leyden, in his 55th year.

ferred upon medicine by his labours, to expose the fallacy of such visionary assumptions, and conduct practitioners from the regions of imagination into the true path of legitimate inquiry, careful observation and rational induction.

An important improvement was introduced about this time into the practice of midwifery by the invention of an instrument for the purpose of facilitating delivery in cases of difficult parturition: this was a forceps, contrived by Dr. Hugh Chamberlen, (an eminent accoucheur in London,) his father and two of his brothers, about the year 1660, but of which, during their lives, they made the greatest possible mystery, boasting that they were able, by means of this instrument, to deliver women with the most perfect safety and dispatch, in cases in which, before this invention, it was usually necessary to sacrifice the life of the child in order to preserve that of the mother. Having established the reputation of his forceps in England, Chamberlen, in 1672, proceeded to try his fortune with it at Paris, where, instead of adding to his fame, he encountered only disgrace: for, undertaking to deliver a woman whose pelvis was too narrow to admit the passage of the child's head without mutilation, the woman died in consequence of the attempt, as Marigeau, a Parisian accoucheur of eminence, who was strongly opposed to Chamberlen's practice, had predicted. Chamberlen, to escape the disgrace of this unlucky failure, quitted Paris and proceeded to Holland, where he is believed to have been more fortunate in his practice, and to have imparted his secret for a valuable con-

sideration to the celebrated Ruysch. He then returned to London, where he accumulated a considerable fortune, not so much, if we believe his adversary Mariçeau, through the success of his forceps, as through reading and translating Mariçeau's "*Observations sur la Grossesse*," the best work of the kind which had then appeared. Notwithstanding this sneer of Mariçeau's, which savours more of jealousy than truth, his forceps must be allowed to have contributed largely to his success; and it has been justly regarded as one of the most valuable instruments in midwifery, deservedly placing its inventor high among the improvers of his art. In 1683, Chamberlen published his translation of Mariçeau's work, which was read with the greatest avidity, and has gone through a large number of impressions.

If the sixteenth century could boast of its Bovius and Paracelsus, who rivalled the Asclepiades, the Themison, and the Thessalus of antiquity, in the extent of their daring, and the presumption of their ignorance, the seventeenth also could boast of its Borri, one of the most impudent, and for a time, most successful impostors any age or country ever beheld.

This bold and blushless empiric, Joseph Frances Borri, was born at Milan about the year 1645, and educated in the Jesuits' College at Rome, where from his earliest youth he exhibited marks of a turbulent and licentious disposition; afterwards, however, affecting the character of a devotee, he declaimed against the corruptions of the age, and set up a claim to supernatural re-

velation. Afraid, however, of the power of the inquisition, he withdrew from Rome, and removed to his native town, where he became the leader of a new sect, binding his followers to secrecy by the strongest vows, and depriving them of their property, by imposing upon them the obligation of voluntary poverty. Arrogating to himself the credit of a divine mission, he took upon himself the episcopal privilege of conferring ordination by the imposition of hands. The arrest of some of his followers by the familiars of the Inquisition awoke him from his visions of theocratic importance, and fancied security, and he fled to escape the vengeance which overtook his deluded followers and menaced himself. Upon this he was publicly proclaimed a heretic, and, in default of appearing to answer the charges brought against him, was condemned for contumacy and sentenced to grace an *auto da fe* in effigy; which was accordingly done at Rome in 1661. Meanwhile he not only enjoyed security at Amsterdam against the familiars of the *holy office*, but found in that town a new theatre for the display of his matchless effrontery, and daring impostures. Assuming the character of a physician and chemist, he laid claim to the possession of extraordinary skill, and, to succeed the better in his deceptions, set up a splendid equipage and assumed the title of Excellency. His success at Amsterdam, however, not coming up to his expectations, he thought proper to decamp from that town suddenly in the night, laden with all the gold and jewels upon which he could lay his hands, and shift the scene to Ham-

burgh, where he succeeded in imposing upon Queen Christina a belief that he possessed the secret of the philosopher's stone. Having at length exhausted her means of administering to his extravagance, and fearing an unwelcome detection of his barefaced impostures, he found it convenient to remove his quarters in time, and make Denmark the new theatre of his exploits. Here he succeeded in levying contributions upon the credulity of the Monarch, till, the death of the latter cutting off this fertile source of supply, he found it necessary to quit the Danish territories; but, while hastening to astonish the Turks with a display of the versatility of his genius at Constantinople, he was, through some mistake, arrested on the frontiers of Germany, as a political criminal. Here his good fortune abruptly deserted him, for his name being accidentally reported to the Emperor in the presence of the Nuncio, he was claimed as a heretic, and given up on condition of having his life spared, which was granted: but on reaching Rome he was condemned to abjure his errors, perform public penance, and be imprisoned for life. In prison the fame of his adventures attracted a multitude of visitors of rank; and having succeeded in restoring the health of the French Ambassador who had been given over by his physicians, he obtained, through his influence, a greater share of liberty, and was permitted to continue his chemical pursuits in the castle of St. Angelo, where he died in 1695.

About the same time that Chamberlen improved the art of midwifery by the invention of his forceps, an important revolution took place in the practice

of the obstetric art by the introduction of the fashion, among females of rank, of employing male practitioners, whose assistance it had never been usual to call for, hitherto, in any but the most urgent and dangerous cases. This revolution was effected in 1668, by the talents and reputation of Julian Clement, an accoucheur of celebrity, who contributed largely to the improvement of the art. This distinguished practitioner was born at Arles, in the department of the Rhone, in 1649, and, after receiving the first rudiments of his education there, went at an early age to Paris, where he was placed under the direction of James la Fevre, an eminent surgeon and accoucheur, whose daughter he married, and succeeded, in consequence, to her father's practice on his death. By reason of his great reputation, he was called in, in the year 1668, to the Duchess de la Valliere, who, in consequence of the novelty attending the introduction of male practitioners in such cases, is said to have removed to a private house for the purpose, and to have received him in a mask, so that he remained in ignorance of the rank or name of the person he delivered. His success in this case attracting the attention of the king,* he was appointed accoucheur to the princesses of France, with a handsome pension. This, added to his subsequent employment by other ladies of the court, and Clement's great popularity, succeeded in vanquishing injurious prejudices, and in a little time effected the complete substitution of male for female operators in all obstetric cases. One of the

* Louis XIV.

most important results that followed this great revolution in practice, was the progressive reformation of those abuses which had been suffered to accumulate through ages of ignorance and timidity. Clement, who contributed largely to these reformations, soon saw the absurdity of treating lying-in women as diseased persons, and introduced a variety of salutary regulations for the women and children, especially in abridging the time of confinement, and admitting the entrance of fresh air more freely than usual. He also simplified the mode of turning the fetus in cases of wrong presentation; and was the first to suggest the propriety of rupturing the membranes early in the labour, in cases of profuse and alarming hæmorrhage; a practice which was successfully adopted by his pupil and assistant Parees. Louis honoured him with a patent of nobility in 1684, on the express condition of his continuing to practice midwifery as long as his age and health would allow. He at length died, at the age of eighty, on the 7th of October, 1729.*

The use of arsenic as a remedy for cancer, to supersede the necessity of employing the knife for its extirpation, was again brought forward, in 1665, by Francis Blondel, a native and practitioner, of Paris, in his epistle to Alliot.† He employed in its cure a preparation of arsenicum rubrum, dissolved in nitric acid, and precipitated by means

* Such was the degree of reputation to which Clement attained in his practice, as an accoucheur, that he was sent for to attend the Queen of Spain in three successive pregnancies, the last of which was in 1720.

† *De cura Carcinomatis absque ferro et igne*, 4to. Paris, 1665.

of the superacetate of lead; the precipitate was then washed repeatedly in warm water, and its causticity farther mitigated by burning spirit of wine, with which it was mixed, till the precipitated powder became perfectly insipid. Blondel, who took his degree of doctor at the university of Paris, in 1632, having acquired considerable reputation as a classical scholar, was employed, on the death of Chartier, to assist in completing his splendid edition of the works of Hippocrates and Galen, three of the volumes of which were left unfinished. He was a decided foe to the exhibition of antimony, and all other chemical medicines, fully coinciding in opinion on this point with Guy Patin, his contemporary and coadjutor. We are indebted to him for an edition of the Statutes* of the faculty of medicine at Paris, which he published in 1660.

In 1666 our English Hippocrates, as Sydenham has been most justly termed, published the first specimen of his revival of the inductive method of inquiring into the nature of disease, which Hippocrates had been the first to introduce with success, but of which his followers had, almost from the instant of his death, so unaccountably lost sight; for they, not content with losing themselves amidst the mists of absurd theories and gratuitous hypotheses, even corrupted, in many instances, the doctrines of their master, in order to obtain an apparent sanction for their own absurd deviations from the course he had so clearly and so

* Statuta facultatis medicine, 12mo. Par. 1660.

† Methodus curandi febres, propriis observationibus superstructa. Lond. 1666.

judiciously pointed out, as the only one capable of conducting them with certainty to the haven of truth. Thus succeeding practitioners, without even the exception of Galen, adopting the pernicious example of the followers of Hippocrates, allowed hypothesis to take the place of attentive observation, and idle speculation to supersede careful inquiry: and thus, in the two thousand years which intervened between the first reformation of medicine by the sage of Cos, and the second by our Dorsetshire Hippocrates,—all those cobwebs, which the former had laboured to clear away, became reaccumulated, and it required all the talents and all the perseverance of a Sydenham to clear away, even partially, the accumulated rust, and bring back the science of medicine to some portion of its primitive purity and lustre.

Sydenham, on applying to the study of Medicine, early detected the fallacy of the doctrines usually inculcated in books, and held the medical works of his time in such contempt, that, as Sir Richard Blackmore acquaints us, when consulted as to the best authors to be referred to for the purpose of acquiring a just knowledge of practice, he told the inquirer to “read Don Quixote:” from which reply, whether regarded as jocular or serious, a correct judgment may be formed of the low opinion which he entertained of, and the little regard he paid to, the doctrines then taught at the principal medical schools throughout Europe. His penetrating genius, while it led him at a glance to detect the fallacies of the existing systems, conducted him at the same time into a more rational

and philosophic mode of acquiring correct notions on the subject of pathology. Immediately on commencing practice, he became convinced, as he himself* informs us in the dedication of his Medical Observations on the History and Cure of acute Diseases, that the only means of acquiring a correct knowledge of the fundamental principles of his profession consisted in an attentive observation of the *whole* of the phenomena of disease, and vigilant and minute inquiry into the progress and fluctuations of the several symptoms, from which alone the true and natural indications of cure could be deduced; satisfied, as he metaphorically expresses himself, that were he to wander into the most devious tracts, untrodden by mortal step before, he could not, while following the guidance of nature, stray widely from the proper course. It was to febrile diseases he first applied this inductive method; and it was only after many years of close and anxious attention, that he fully satisfied himself as to their proper

* Post annos aliquot in Palæstrâ Academica insumptos, Londinum reversus, ad praxim medicam accessi, quam cum intento admodum oculo, omnique adhibitâ diligentia, curiose observarem, mox in eam veni sententiam quæ mecum ad hodiernum usque diem crevit; *hanc scilicet artem haud rectius perdiscendum est, quam ab ipsius artis exercitiis atque usu*; verumque nimodum esse simile, quod qui ad naturalia morborum phenomena oculos animumque accuratissimè maximèque diligenter advertit, in eliciendis curativis indicationibus *veru ac germinis* maxime pollere debeat. Hunc itaque me methodo totum tradidi, satis securus, quod naturam si sequeretur ducem, etiam *avia terrarum peragrans loca, nullius antè trita solo*, nusquam vel latum unquam a recto tramite discederem.—Epist. dedicat. observat. medic. circa morborum acutorum historiam et curationem, 8vo. Londini, 1683.

and judicious mode of treatment. In writing a history of diseases, as he elegantly expresses himself in the preface to his Medical Observations, the writer should, for the time, dismiss from his mind every philosophic theory which might prejudice his judgment, and, with this indispensable preparation, note down in the most accurate manner possible, the whole of the natural appearances of disease, however minute—like the faithful designer, who retains in his portrait those very warts and freckles which are indispensable to the production of a perfect likeness. Yet, with that inconsistency which is an inherent blemish in our nature, Sydenham, although possessing almost intuitive knowledge of the path which he ought to pursue, and which he himself so ably pointed out, falls into the very error he condemns, and interlards his observations with such a redundancy of hypothetical jargon and visionary reasoning, as obscures, and nearly overwhelms the sound practical observations which his work contains. He commences with the Hippocratic definition of disease, as a violent effort of nature to expel the peccant matter for the renovation of the constitution.* Thus he considered plague to be an effort of nature to expel the morbid humours by means of buboes, &c. He appears in his practice, however,

* *Hæc rerum circumstantiis ita intus essentiae humanæ intertextis complicatisque, ut nemo quisquam se ab illis in solidum atque liberare, natura de ejusmodi methodo ac symptomatum concatenatione sibi prospexit, quibus materiam peccantem atque alienam, quæ totius fabricæ compagem aliter solveret, è suis finibus posuit excludere.—Obs. Med. p. 1-2.*

to have discarded the deceptive light of hypothesis and taken nature, as he professed himself, for his only guide; regulating his views by a careful consideration of the symptoms, together with the *jurantia* and the *ludentia*; thus introducing a great practical improvement, and being led to pursue the most rational plan of cure. For instance, in small pox, he moderated the eruptive fever by cool air and antiphlogistic remedies, by which the subsequent eruption was greatly lessened, and the danger proportionably diminished; although the adoption of this plan was in direct contradiction of his own hypothesis; according to which, as a salutary effort on the part of nature to relieve the constitution, the increase of the eruption ought to have been promoted. Here, however, as in other instances, Sydenham furnished a useful example of the triumph of common sense over speculative delusion. Modern experience has fully corroborated the wisdom of his plan, which is now generally pursued both in this and other eruptive complaints. The histories which Sydenham has left us of measles, gout, small pox, and other disorders, afford striking evidence of the depth of his sagacity and the soundness of his observations, and are justly regarded as models of what medical histories should be; and his details of the Protean symptoms and deceptive appearances which hysteria exhibits, afford farther proof of the accuracy of his discrimination. Neither did the influence which difference of season exerts over disease in modifying its character, and rendering a corresponding modification in the plan of treatment necessary,

escape his penetration ; and he has even extended his observations to what he terms the epidemic constitution of different years, which he regards as likewise modifying, in a considerable degree, the character of the prevailing complaints.

The confined limits of the present work will not admit of a more detailed analysis of the peculiar merits of the illustrious Sydenham ; nor is it indeed necessary, in a history whose object is rather to mark the various stages of improvement, than to enter into a minute explanation of their nature ; to give, as it were, a passing view of the country through which it travels, rather than to dwell upon the minute topography of each particular spot. Besides, facts now crowd so rapidly upon us as to leave little room for speculation, and compel us, as we approach the goal of our destination, to generalize our views, if we would complete our journey within reasonable limits. In addition to the works already noticed, Sydenham published many others which will be found mentioned in the note.* Among these his treatise on Gout and Dropsy, dedicated to Dr. Short, is particularly deserving of careful study, as being, with his ob-

* *Epistolæ responsoriæ duæ, prima de Morbis epidemicis ab anno 1665 ad 1680, ad R. Brady ; secunda de Luis Venerea Historia et curatione, ad H. Paman, 8vo. Lond. 1682.*—*Dissertatio epistolans ad G. Cole, de observationibus nuperis circa curationem Variolarum confluentium, nec non de affectione Hyasterea, 8vo. Lon. 1682.*—*Dissertatio de febris putrida Variolia confluentibus superveniente : et de mictu sanguineo a calculo renibus impacto, 8vo. Lond. 1682.*—*Tractatus de Podagra et Hydrope, 8vo. Lond. 1683, and Schedula monitoria de novæ febris ingressu. Lond. 1686.*

servations on Calculus, the result of painful experience; Sydenham having been himself a martyr both to gout and calculus, and hence the better qualified, especially with the powers of discrimination which he so preeminently possessed, to give a correct and minute history of the peculiar symptoms attending each of those excruciating complaints. In his plan of treating gout he is decidedly opposed to venesection, whether with a prophylactic or a curative intention. He objects equally to the system of purging which has been recommended by so many practitioners both of his day and of later periods, and above all to that system of periodical purgation so idly adopted by many, and which he regards as tending frequently to augment, in place of diminishing the frequency and the severity of the paroxysms: and nearly upon the same grounds he objected likewise to the plan of diaphoretics; regarding indeed evacuations of all sorts, when carried beyond the degree necessary for health, as injurious, and resting his curative plan chiefly upon a class of medicines which appear little suited to a complaint of an inflammatory character; medicines which, as he says, gently warm the system, and either are slightly pungent, or leave a sensation of bitterness upon the tongue. Gout however has been too long the opprobrium of medicine to allow of our hastily deciding upon the merits or the demerits of any particular plan of treatment which has hitherto been proposed, from the gently stimulant system of Sydenham to the cold water of Kinglake, or the celebrated "eau médi-

cinale" of the French. The true nature of gout appears as little really understood now as in the days of *Æsculapius*; and although it is evident that it is closely associated with a deranged state of the digestive functions, we know too little of the nature of that connection at present to do more with safety to the patient, than consign him to the old and long-tried remedies of patience and flannel; attending to those symptoms which more particularly call for relief, and being content to alleviate where we feel it hopeless to cure. Notwithstanding his angelica roots, his worm-wood, and his antiscorbutics; notwithstanding his host of remedies grateful to the stomach, purifying to the blood, and comforting to the whole system,* Sydenham himself sank under a continued succession of attacks from these invincible foes, gout and calculus, and closed his useful life in his sixty-fifth year, in December 1682; leaving behind him the character of a generous and public-spirited man, added to that of the first physician of his age.

The numerous editions of his works in almost every part of Europe, the deference paid to his authority, and the approbation bestowed upon him by almost every practical writer who has succeeded him, sufficiently attest the justice of his claim to the high reputation which he enjoys: and his character cannot be better concluded than in the glowing language of the great Boerhaave, who

* *Utpote quæ ventriculo sunt pergrata, sanguini medentur, et cæteras partes fovent, confortantque. Tractatus de Podagra, &c. p. 205.*

eximium habeo, Thomam
lumen, Artis Phœbum, cui
honorificæ præfatione mem-
quem quoties contemplatur,
Hippocratici viri species, de
cam medicam meritis, nunc
dicam, quin ejus id sit superat

In the Philosophical Trans
1666, we meet with the first
ments made upon the transfu
one animal into the veins of
laid before the Royal Society
whose speculations probably
tion of the experiments upon
which he had made upon anim
tempted, probably for the very
Denys, a graduate of the Univ
lier, who published the result
in the "Journal des Savans" fo
an enthusiast on the subject, and
cess from the plan which he rec
in a letter to M. de Montmor.*

human subjects were expressly prohibited by the parliament. Some recent attempts have been made, among the other paradoxical speculations of the nineteenth century, to revive Doctor Lower's and Doctor Denys' practice; but this attempt to invade the patent rights of that illustrious pair is not likely to prove very successful, or to become fashionable any where beyond the precincts of St. Luke's.

Among the other proselytes during this century to the efficacy of Cinchona, we find William Cole, a learned and ingenious physician, who after having been educated at Oxford, (where he took his degree of bachelor of medicine in 1660, and that of doctor on the 7th of July 1666,) settled at Bristol, whence he removed to London. He had early become a convert to the utility of bark, which he employed with equal boldness and success in hysterical affections as well as intermittents. In a work which he published at Oxford on the animal secretions,* he ascribes the peculiarities of their quality to a peculiarity of structure in the secreting glands. In 1689 he published an *Essay on the Frequency of Apoplexies*; and in 1694, his new *Theory of Fever*, which he ascribed to a vitiated state of the nervous fluid. In another work† he strongly recommends the use of the mistletoe in epilepsy, and pretends to have cured the complaint;

* De secretione animali cogitata, 8vo. Oxon. 1667.

† Consilium ætiologicum de casu quodam epileptico.

inserting a history of the case, given by the patient himself, in which he says he was very much relieved.

A much more useful work than Dr. Cole's treatise on the medical or the magical properties of the misletoe was a manual published in 1673 by John Archer, under the title of "*Every man his own Physician*," which, although little noticed, was a useful work for its day. From a list of his inventions subjoined to his work Dr. Archer appears to have been a man of considerable ingenuity, and to have anticipated some of the more remarkable of our modern improvements. Dr. Archer's inventions consisted first of a vapour bath for rheumatism, &c. secondly, of a conjurer fully equal to the most improved invention of the nineteenth century, which the doctor calls "An oven which doth, with a small faggot, bake, distill, boil a pot, or stew, all with the same charge of fire, time and labour." Even the celebrated Count Rumford, so distinguished for his œconomy of fuel, might perhaps have benefited by an inspection of this many-functioned oven. His third invention was that of a chariot so contrived as to be moved at pleasure by the person seated in it.

In the year 1675 the attention of the public was called to a new method of curing gout by the application of fire, which was introduced from India by Herman Buxtoff, a native of Utrecht, who had been resident for many years in Batavia. During his stay there he had been induced, while labouring under a paroxysm of gout, to employ an

Indian woman to cure him, (which she did by burning little pellets of *moxa** on the part affected,) and found such relief from this mode of applying the actual cautery, that he was induced to collect and throw into the form of a short treatise written in Dutch, a number of cases illustrative of its efficacy. This he sent to Holland to be printed, accompanied by a specimen of the moxa, and the matches made of sandalwood which were employed to light the pellets. In his treatise he speaks of the frequency of this mode of treatment, not only in gout but also in other complaints, among the Chinese and Japanese, and says the operation lasts about half an hour, and is attended with but little pain, leaving small scars which are digested out in a few days, and little eschars that heal with any common application. In his own case he says he fell into a sound sleep for twenty-four hours, after the operation, from which he awoke perfectly free from pain and swelling. On experiencing a second attack of gout, two years after, he had recourse to the same remedy with the same success. He also stated that he had known this remedy employed with equal success in the cure of schirrous tumours, nodes and lethargies. At the time this treatise of Buschoff's made its appearance in Holland, Sir William Temple was resident as British Ambassador at the Hague, and, being a martyr to the gout, was easily induced to try the new remedy; with the effect of which he was so much pleased

* The pith of a species of *Artemisia*.

that he wrote a treatise himself on the subject, explaining the manner in which the moxa was to be used, and the benefit which he himself had derived from it. Buschoff's work was also translated into English in the same year, at the instigation, as we are told by Sir William, of the professors of Gresham College, of whom however no notice was taken in either the title or the preface. For a time, like every other novelty, the moxa continued to be a fashionable remedy, but, its effects having at length been found not to equal the extravagant expectations which had been formed of it, it fell into disuse.

Gerard Blasius, a Dutch physician of some repute, published in 1687 a small volume of Medical Observations,* containing an account of various morbid appearances, and deformities of the body, divided into six parts, under which they are arranged methodically: many of these are extremely curious, and serve to mark the growing improvement of Medical observation and inquiry. Among other remarkable cases he mentions (page 80), the case of a boy of twelve years of age, who had been operated upon for the stone, in the month of March 1673, passing in a short space of six months, upwards of a hundred urabrics, upwards as well as downwards, the whole of which were voided alive. In the following observation, he gives an account of a stone met with two worms† of great length

* *medicæ rarioræ. Amstelodami, 1667.*
 † *duo unæ et quod excedit longitudinem habebat, aliquando reperti: coloris erant rubicundi,*

and unusual structure in the kidney of a man. Of these singular worms figures are given in the eighth of the tables, subjoined to the volume, which exhibit a manifest improvement in the art of delineating objects of natural history. Among the cases of anomalous structure, he notices a deficiency of the right kidney in one instance,* and of the urinary bladder† in a second; in a third he speaks of two stomachs,‡ and in a fourth of three kidneys.§ Blasius was the author of several other works on anatomy, both human and comparative; and, in a letter inserted in the third century of Bartholine's epistles, he lays claim to the discovery of the salivary duct, which has been erroneously assigned to Steno, but truly belongs to him, he having first shewn it to Steno, whose name it improperly bears.

In the year 1678, an improvement was made in the practice of amputation, by Mr. James Young, a surgeon of Plymouth, who placed a hard bolster of linen on the inside of the limb, in the direction of the main artery, then, passing a bandage round the limb, tied the ends together, and twisted them so tight as effectually to interrupt the circulation. He recommended loosening the tourniquets a little before the dressings were applied, in order to discover where astringents were most wanting. He gave an account of this plan in a scarce book published in London, in 1679,

aqueo humore turgidi, quasi ex annulis plurimis affabre junctis constare videbantur. *Obe. Med.* p. 80.

* P. 49.

† P. 52.

‡ P. 53.

§ P. 58.

under the name of "*Currus triumphalis e Terebintho*," in which he proposes amputating with a flap, since claimed as a discovery by two French surgeons, Verduin and Sabourin.

In 1679, Stephen, son of Nicholas Blancard, published his *Medical Lexicon*, a useful and laborious compilation, which has been more than once consulted with advantage in the preparation of the present work. It has gone through many editions; of which that of 1756, employed on the present occasion, has been enlarged to 1015 octavo pages, exclusively of the copious indexes, which form nearly a third of the whole. This work contains the explanation of many medical terms, such as the student may experience some difficulty in finding elsewhere.

We have already had occasion to notice the fact of a foetus having been extracted from the maternal uterus, in which it was supposed to have lain for upwards of twenty years, as attested by writers of the highest credibility, and as having occurred in France during the last century. We are called upon to speak of another, which does not rest upon equally credible authority, since it comes from an account published in 1679* by Nicholas Blegny, a quack rupture doctor, who acquaints us that the foetus was said to have been petrified, having acquired from its long residence in the abdomen, and the pressure of the other viscera, an almost cartilaginous hardness, and retaining little of the human

* *Histoire anatomique d'un enfant qui a demeuré vingt cinq ans dans le ventre de sa mere*, 12mo. Paris 1679.

form. Had Blegny been ever so imperfectly acquainted with the doctrines of physiology, he would have known that simple pressure was more likely to produce absorption than petrification; and the whole account comes before us in so questionable a form, that although the case already related, upon the authority of Bartholine and Paré, justifies our admitting the possibility of some real foundation existing for Blegny's report, implicit reliance should not be placed on all the statements of his narrative.

Blegny had previously published a small volume on the art of curing ruptures,* which has been frequently reprinted. His method was to cauterize the skin of the groin with nitric or muriatic acid, by which means, after the wound had closed, a firm cicatrix remained, which contributed to resist the farther descent of the intestine; it was the invention of the Prior De Cabeveres; and he instances several remarkable cures which he effected by this method; in one of the cases which he relates the urinary bladder had slipped into the ring.—Blegny was the author likewise of a work on Syphilis† which complaint was known, as he pretends, to Moses and the ancients, and may be produced by immoderate venery. He justly censures the use of astringent injections in cases of gonorrhœa, and professes to cure lues with more certainty, as well as safety,

* *L'art de guérir les hernies*, 12mo. Paris 1676.

† *L'art de guérir les maladies vénériennes, expliqué par les principes de la nature, et de la mécanique*, 2 vols. 12mo. Paris.

by means of guaicum and sarsaparilla, than by mercury.

In 1683, Laurence Bellini, who was born at Florence, in 1643, published a quarto volume* on the subject of the pulse and urine, venesection, fevers, and disorders of the head and chest; of which a fourth edition was published at Leyden in 1717, with a preface prefixed to it by the celebrated Boerhaave. It is dedicated by Bellini to Francis Redi, and is a work of considerable observation and research, although often obscure, and considerably too theoretical.

Among other valuable matter, Bellini's work contains an excellent description of that rare, singular, and mysterious affection catalepsy,† which it has fallen to the lot of so few, even of the most eminent practitioners, to witness; an affection in which the whole of the voluntary powers are suddenly arrested, and the body becomes fixed during the continuance of the paroxysm in the same attitude in which it commenced, as though, to use the emphatic language of Bellini himself, it was suddenly converted into "rigid iron, or inflexible wood:"‡ or perhaps, in stricter language,

* De urinis et pulsibus, de Missione Sanguinis, de Febribus, de Morbis Capitis et Pectoris. Opus Laurentii Bellini, dicatum Francisco Redi. 4to. Bononiæ, 1683.

† De morbis capitis, p. 593. Lugduni Batav. 1717.

‡ Rigor partium, ita ut velut ex rigido ferro aut inflexibili limbo corpus compactum videatur, neque circumverti partes ad articulationes possunt, nisi magna vi, et corpus detinetur immobile in eo locote, ac situ, in quo constituitur, dum morbi paroxysmo corripitur: hinc memorantur rigidi, jacentes, sedentes, erecto capite, detento inter digitos calamo, et hu-

the patient suddenly becomes like a breathing statue, incapable of thought, volition, or spontaneous motion, while at the same time, the vital or involuntary functions, those functions over the exercise of which the soul or thinking principle has no controul, as the respiration and circulation, go on unimpaired, and apparently unaffected by the apparent absence of the soul; marking such distinction between the vital and the sentient powers, as, if we could penetrate a little more deeply into those secrets, which it has pleased the Almighty for the present, at least, to conceal from human penetration, would at once explain that mysterious connection between matter and spirit, between the immortal soul and the perishable body, which the greatest philosophers have hitherto sought in vain. We hover as it were on the brink of discovery, while an irresistible power holds us back and pronounces "thus far, but no farther."

Closely connected with the speculations to which the description of that singular and almost incredible affection of which we have just spoken, (and which may well be termed, in the language of Bellini, "*admirabile prorsus morbi genus*,") almost unavoidably gives birth, is the subject assumed by the celebrated Boerhaave for his inaugural Thesis on taking his degree in philosophy in 1690; when, taking for his theme "*De distinc-*

juamodi mille. Obmotrescunt subito, oculos intente detinent in objectum aliquod plane inmotos, nihil sentiunt, nihil cogitant, nil recordantur, ut asserunt restituti: respirant facile, et pulsant arteriæ. De morb. cap. 1. c.

time mentis à corpore," he ably refuted the of Hobbs and Spinoza. Notwithstanding being suspected of a latent attachment to the doctrines whose fallacy he had so completely posed in his Thesis, he was induced to abandon his original intention of treading in the footsteps of his father as the pastor of a village church, and, directing his attention from theology to medicine, became one of the brightest ornaments of the profession, and furnished to Holland a speaking of our illustrious Sydenham, he said, "excellent physician had exhibited before him, "*Hippocratici viri species*." Chemistry was a branch of study which appears to have principally engaged the young Herman's attention; he did not, however, devote himself exclusively to any branch, but studied the works of Vesalius, Ruyssch, and Bartholine, and learned dissection of Nuck. In medicine he preferred Hippocrates among the ancients, and Sydenham, whom he called the divine, among the moderns. In 1685 he took his degree of doctor of medicine, at Harewyckin in Guelderland, at the age of twenty-two, taking for the subject of his thesis "*De utilitate plorandorum excrementorum in agris, ut signum*" The remaining particulars of his brilliant career belong to the history of the succeeding century.

About this time the situation of the deaf and dumb began to attract the attention of philosophers; one of whom, John Conrad Amman, native of Schaffhausen, and graduate of the University of Basil, (where he took his doctor's degree in 1687,) applied himself particularly to

discovery of a method by which persons, unfortunately deprived of the powers both of hearing and of speech from their birth, might be taught to express themselves intelligibly, or at least to make their wants known. In this useful and humane endeavour Amman appears to have been eminently successful, as is fully evinced in his treatise on the subject, first published in Dutch in 1662, under the title of "*Surdus loquens*," and afterwards translated into Latin, and republished in 1702, with the additional title of "*Seu dissertatio de loquela*,"—a work of such high merit that Haller has not hesitated to style it "*opus vere aureum*." This judgment which is fully confirmed by the fact of no material change having been made in the directions it contains, which are universally adopted at the present day, by all who follow in the same path of professional practice. Amman's work has steadily maintained its original reputation, gone through numberless editions, and been translated into almost every European tongue.

In 1695, John Colebatch, a surgeon and apothecary of much talent and industry, published an octavo volume in London,* in which he pointed out the mischief of using tents, and injecting acrid substances into wounds. For these he advises the substitution of a powder of his own composition, dissolved in water, which, he said, served at once to check hæmorrhage, allay pain, and dispose the parts to heal. His plan exciting,

* A new light of chirurgery, 8vo.

as was natural, considerable opposition, he republished it a few years after, accompanied by a laboured vindication, and a variety of cases illustrative of its success. In 1696 he published another work,* wherein he adopted the chemical doctrines of Van Helmont and Sylvius, attributing almost every complaint to a redundance of alkali, and maintaining that the most rational plan of cure consisted in the exhibition of acids, such as lemon juice, cream of tartar, and sulphuric acid; these were his grand panaceas, especially in the cure of gout, on which he published a treatise in the following year. His last publication was on the medicinal properties of the misletoe, of whose efficacy in epilepsy, chorea, and other convulsive disorders, he gave numerous instances from his own experience. He exhibited the powder in half drachm doses every three or four hours. The misletoe has, however, notwithstanding Dr. Frazer's attempt to revive it, sunk into complete oblivion.

Contemporary with Colbatch was Augustin Bellosté, a native of Paris, and the inventor of a mercurial composition called, after him, "Bellosté's pill," by which he is believed to have accumulated a considerable fortune. As in other nostrums, a mystery was made of its composition, which renders it impossible to speak of its merits, nor should its inventor have found a place here, but for the purpose of reprobating the illiberal and un-

† A Physico-Medical Essay, concerning alkali and acid. 8vo. London 1696.

worthy example which he, as well as Dr. Chamberlen (the inventor of the obstetric forceps, and a practitioner of such deserved celebrity) set, of concealing the preparation of a composition calculated to mitigate the amount of human suffering, in the mercenary view of turning the distresses of his fellow creatures to his own private advantage. Such conduct may suit the vendors of such worthless, if not pernicious quack compositions, as are daily imposed on the public, but is utterly beneath every respectable member of a respectable profession, and inconsistent with the fundamental principle of our christian faith, which teaches us to do as we would others should do to us. That Belloste was capable of better things, and was influenced at times by nobler feelings, has been sufficiently proved by the publication, in 1695, of his "*Chirurgien de l'Hôpital*," which has gone through numerous editions and been extensively translated; and of which he gave a continuation a few years after,* wherein he recommended, with Celsus, the piercing of carious bones, in order to promote their exfoliation—a practice which has long fallen into disuse. Belloste blames the practice of changing the dressings of wounds too frequently, as tending to retard their healing. This work, though now neglected, possesses a considerable portion of original merit.

George Baglivi, who was born at Ragusa, in 1668, and appointed professor of the theory of medicine and anatomy at Rome, by Pope Inno-

* La suite du *Chirurgien de l'Hôpital*, 1725.

cent XII published his first work,* in 1696, in which he deplores the low condition of medicine in his time; this he imputes to the neglect of observation and experiment, the omission of studying the ancient Greek writers, Hippocrates especially, and an inordinate fondness for speculative rather than experimental reasoning. He admits, nevertheless, the progress made in Anatomy and Physiology, and the superiority of the modern theories, founded upon these bases, to the wild unsubstantial dreams of the ancients, and anticipates that when the moderns shall sedulously apply themselves to practical observation, they will surpass the ancients as far in their knowledge of the true treatment of disease, as they then did in the soundness of their theories. Inquiring whether theory or practice conduces most to a knowledge of the proper treatment of disease, he decides in favour of practice, at the same time that he recommends a combination of both. "Quicumque de medicina medittus fueris," he says, "pro veris non haberas, nisi prius ad Lydium praxeos lapidem revocaveris: quod si repetita experientia inveneris vera, pro veris semper semper habeto. De bono aut malo vino judicare non poteris nisi gustaveris; perfectus musicus non erit nisi cecinerit; nec miles strenuus, nisi bella gesserit."† Notwithstanding his denunciation of hypothesis, and his recommending every thing to be brought to the touchstone of experience, Baglivi

* *De Praxi Medica ad priscam observandi rationem revocanda*. Libri IV. 8vo. Romæ, 1696.

† *Opera omnia*. 4to. p. 127.

labours under the charge of too great a fondness for hypothesis himself. He is also accused of plagiarism, and censured for credulity in suffering himself to be imposed upon by knaves pretending to labour under various affections from the bite of a tarantula, which only admitted of cure by music: on this point, however, we should be lenient to Baglivi, since we find even our enlightened countryman, Mead, at an interval of half a century later, attempting to account for this supposed phenomenon upon philosophical principles.* In 1696, Baglivi published his Dissertation, "*De anatome, morsu, et effectibus Tarantulae*," to which succeeded his work, "*De Fibra motrice et morbosâ*," containing his theory respecting the origin of the motion of the solids, which he ascribes to a consent between the heart and dura mater. This theory he has been accused of having borrowed from Puccioni, but he says himself,† on the contrary, that he communicated it first to Puccioni. Baglivi was the author of several other works, all of which were collected and published under the title of "*Opera Omnia*," of which there have been many editions, and which will always merit the attention of the medical student, on account of the valuable observations therein contained.

In the last year of this century, Abraham Cyprian, a native of Amsterdam, (where, after graduating at Utrecht, he settled in practice, and continued to re-

* Mead's Works, Essay II of the Tarantula, p. 50, 8vo. Dublin, 1767.

† Opera omnia, p. 258.

side till invited, in 1692, to fill the anatomical chair at Frankwar,) published an account of an extra-uterine fœtus, taken from one of the fallopian tubes, in which it had lain for twenty-one months. Although the woman recovered from the effects of the operation, her death, a few years after, furnished Cyprian with an opportunity of examining her body, and discovering the place in which the fœtus had been lodged. Cyprian was also an eminent lithotomist, and operated, it is said, upon no less than 1400 patients. He has left an account of his method of operating in his "*Cystotomia Hypogastrica*," published in 1724.

The last writer of this century, belonging to this chapter, whom we shall notice, is Adam Breudel, who published a collection of Inaugural Theses, chiefly connected with the state and diseases of pregnancy, some of which are valuable; especially those "*De hydropse ovarii muliebris*," in which he gives an accurate description of that organ, and "*De nutritione fœtus in utero materno*." He was professor of Anatomy and Surgery at Wirtemberg, and an experienced surgeon.

CHAPTER XII.

Progress of Anatomy and Physiology during the Seventeenth Century—Discovery of the Lacteals, in 1622—Of the Circulation, in 1628—Of the Pancreatic duct, in 1642—Of the Lymphatics, in 1651—Of the functions of the Thoracic duct, in 1651—Of the Cystic duct, in 1654—Wharton's Adenographia—Highmore—Steno—Malpighi—Ruysch, his valuable anatomical preparations; makes a preparation of the body of Admiral Barclay, killed in the action of the 11th of June.—Meibomius discovers new vessels in the eyelids, and projects a history of Physicians—Needham describes the membranes which inclose the testis—Boerhaave publishes remarks on the unequal powers of the eyes—Swammerdam, his zeal for Natural History; ardour in the pursuit of Anatomy; becomes hypochondriac from too close application; shortens his life by religious mortifications—Bridges explains the cause of the distinctness of vision—Grew—Peyer, describes the mucous glands of the intestines.—Boerhaave—Schellhammer—Blancard—Cowper—Ruey—Boulton—Bidloo.

THE seventeenth century stands proudly pre-eminent in the history of Medicine, for the importance no less than the splendour of its discoveries in Anatomy and Physiology, as well as for the host of illustrious names which appear emblazoned in its records, the title of whom is almost more than the limits of this work, already swoln far beyond the compass originally allotted to it, will admit of being noticed.

The first discovery of anatomical importance which demands our notice in the present century is that of the lacteals, made, as Douglas says "*casu magis quam concilio*," by Gaspard Aselli or Asellius, a native of Cremona, who taught anatomy, at Paris, with great credit. This discovery is an important prelude to that of the circulation, which was made by Aselli, in 1622, in consequence of his opening a dog soon after eating a full meal, by which means the lacteals of the mesentery were rendered distinctly visible as they ran across the distended with the milky fluid of the newly absorbed chyle. Aselli, however, ignorant of the true course, erroneously described them as passing from the intestines to the liver, and confounded them with the lymphatics of that viscus. The lacteals had been, as he candidly admits, known and spoken of by some of the ancient writers, but since they had neither been described, nor their functions demonstrated by them, and since none of the modern revivers of anatomy anticipated him in the discovery, that merit may be awarded to Aselli. Caspar Hoffman ridiculed their discovery, and Harvey even regarded them only as vessels destined for the conveyance of the lymph. Asellius mistook a collection of glands in the mesentery for the pancreas, and described this last as a new discovery, which contributed with his mistake as to the direction taken by the lacteals to involve the discovery in much obscurity.

Six years after the discovery of the lacteals Harvey, our illustrious countryman, who had be-

led, by his instructor, Fabricius ab Aquapendente's observations upon the valves of the veins, to investigate the long disputed problem of the circulation of the blood, solved the mystery which had so long baffled the penetration of the greatest men, and, having completed his masterly and unprecedented researches, astonished and delighted the world of Science by the publication, in 1628,* of the true theory of the circulation—an "*opusculum aureum*," as Haller truly observes, arranged with the most admirable perspicuity, and resting on the firm basis of experiment, unalloyed by a single particle of the base metal of speculation.†

* *Exercitatio anatomica de Motu Cordis et Sanguinis in Animalibus.* Francf. 1628.

† Professor Blumenbach estimates the quantity of blood expelled by each contraction of the heart, at two ounces, taking the number of pulsations at seventy-five per minute. The whole mass of blood is estimated, by this experienced Anatomist, at thirty-three pounds; whence it follows that the blood completes its circulation in about three minutes and a half, or, more nearly, in three minutes thirty-nine seconds, and that a mass of fluid equal to the blood, is carried through the heart twenty-four times every hour.

Harvey, who decided on no point which he was unable to submit to the test of experiment, left the nature of the communication between the arteries and veins undetermined, but the art of injection has enabled his successors to trace the continuation of the canal uniting both systems of vessels: and the proof which remained defective has been completed by the microscope, which exhibits the circulation actually going on in the transparent parts of frogs during life: while the transfusion of the blood from the vessels of one animal to those of another, which has been successfully performed in many instances, has filled up the last link in the chain of demonstrative evidence. By these discoveries much light is thrown on the animal economy, and that which was before either wholly overlooked, or dimly seen, has become clear

We have already seen that the nature of the circulation had been progressively unfolding itself for a period of more than half a century, from the days of Servetus to those of Harvey; each succeeding anatomist adding somewhat to the mass of illumination which progressively shed its rays upon the subject, demanding only a master mind to concentrate them in a due focus, and guide their direction to the proper point. That master-mind was Harvey's, who, following up the discoveries of which his instructor was unable to understand the application, completed the magic circle of the circulation, and exhibited the blood not merely performing its minor circulation through the lungs,—not oscillating, as Cæsalpinus idly imagined, in perpetual ebb and flow through the same vessels,—but flowing in one full majestic stream from the left ventricle of the heart through the aorta, and its infinitude of ramifications and subdivisions, to every part of the frame, imparting life, health, vigour and warmth to all; taken up by the various and minute ramifications of the veins, after performing its destined functions; poured into the vena cava, and thence returned to the right auricle and ventricle of the heart, to prepare for the inhaling of

as the noon-day sun. The discovery of the circulation proves the truth of the scripture expression, that the blood is the life, since from it every part is formed and maintained. The discovery of the absorbents shews how the food is converted into blood, and those parts which have become effete are carried into the blood to be eliminated by the excretory organs.

a fresh portion of the vital fluid of the atmosphere in another passage through the lungs, previously to its resuming its vivifying circle through the system.

The more brilliant a discovery, and the more beneficial its results, the more certain is its author of becoming the butt of envy, and the object of detraction. That of the circulation too far transcended all which had preceded it, for Harvey to hope for escape from the common lot—but we have not room to dwell on the efforts of detractors whose malice has long ceased to be injurious. The triumph of truth has baffled their efforts to detract from his merits, and the claim of Harvey to the completion of one of the most brilliant discoveries history ever had to record, stands uncontestedly admitted.*

* Without the least wish to detract from the merit or originality of Harvey's great and important discovery, common justice to the ancients forbids the omission of the following passage from the *Timæus* of Plato, which appears so clearly indicative of an acquaintance with the true theory of circulation, as to leave us at a loss to conjecture whence, in that absence of anatomical knowledge, which characterized the earlier ages, such knowledge could have been attained, or how, once attained, it could have been lost, as it most indisputably was long before its recovery, or perhaps, more correctly, re-discovery by Harvey —

"But they (the Gods) established the heart, which is both the fountain of the veins, and the blood, which is vehemently impelled through all the members of the body in a circular progression."

Can we suppose that this was one of those scattered fragments of divine revelation to man in his state of primal innocence and simplicity, which were gradually obliterated with the other traces of his celestial origin?

174 DISCOVERY OF THE PANCREATIC DUCT,

In 1642 the pancreatic duct was discovered by John George Virsugus (or Wirtungus, as he is sometimes called,) a Bavarian anatomist of considerable ability, who shortly after was assassinated in his own study by an Italian, supposed to have been hired for the base purpose.

Almost at the same time, and without the slightest acquaintance with the nature of each other's researches, three anatomists of eminence in three distant countries, Sweden, Denmark and England, appear to have discovered the vessels of the lymphatics. The merit of this discovery seems to belong in a nearly equal degree to all, being, as far as each was individually concerned, an original discovery : but in point of priority the palm, we believe, ought in justice to be allotted to the Swede.

Olof or Olaus Rudbeck, son of the honest but uncourtly Bishop of Vesterås in Sweden, whose love of truth is said to have prevented his promotion, made, as early as 1649 or 1650, when but nineteen or twenty years of age, the discovery of the lymphatics of the liver, and soon after of those of other parts of the body, of which he has, we believe, given some account in his *Inaugural Thesis** the subject of which was the Harveyan doctrine of the circulation of the blood. Bartholine's discovery, which appears to have been perfectly independent of

* AD. 1652.

that of Rudbeck, was first published in 1653;^{*} and nearly at the same time the same discovery was made, without the slightest acquaintance with the discoveries either of Rudbeck or Bartholine, by Jollife, an English physician. But although Haller awards the palm of priority to Rudbeck, he fully admits the claim of Bartholine to the merit of having traced and described the course of these vessels with the greatest accuracy.

The discovery of the lacteals, which Douglas alleges to have been fortuitous, on the part of Aselli, remained imperfect till Nicholas Pequet, a native of Dieppe, completed the labours of his predecessor by tracing these vessels to their common receptacle, the thoracic duct, which, traversing the whole length of the thorax and collecting the contents of all the lacteals in its course, pours the accumulated chyle into the veins near the heart. Previously to this discovery of the grand receptacle of the contents of the lacteals by Pequet, who made it almost simultaneously with that of the lymphatics by Rudbeck, Bartholine and Jollife, in 1651, anatomists, misled by the description of Asellius, and the erroneous opinions of the ancients, imagined that the lacteals terminated their course in the liver. The discovery of the thoracic duct had indeed been made nearly a century before† by Eustachius, but he by no means understood the nature or importance of

* *Vasa lymphatica nuper Haffnæ in animalibus inventa et in homine.* &c. Haffnæ, 1653.

† AD. 1563.

its functions, and the discovery was little regarded before Asellius' discovery of the lacteals. For upwards of a quarter of a century after this discovery, both Asellius, himself and all the anatomists who succeeded him, previously to the labours of Pecquet, leaning to the erroneous opinions of Hippocrates and Galen, imagined that the mesenteric veins absorbed the chyle from the intestines only to convey it to the liver, instead of pouring it, as Pecquet first ably and clearly demonstrated, into the general mass of the circulation, in order to its final appropriation to the nourishment of the body. Hence, though the praise of having known the existence of the thoracic duct must be indisputably given to Eustachius, as that of having noticed the valves of the veins belongs to Fabricius, the still greater praise of supplying that link without which the remaining portions of the chain were useless, and connecting the discovery of Asellius with that of Harvey, by demonstrating the functions of the thoracic duct, belongs as exclusively and indisputably to Pecquet, as the completion of the deficient link, which neither Servetus nor Columbus, Cæsalpinus nor Fabricius, had been able to accomplish, was the work of our distinguished countryman Harvey. Still, notwithstanding the discoveries of Asellius, Pecquet, Rudbeck, and Bartholine, (the latter of whom discovered the great trunk of the system, and likewise pointed out the error of supposing that the lacteals passed into the liver,) the question as to the identity of the lacteals and the lymphatics, remained yet in

GLISSON'S DISCOVERY OF THE CYSTIC DUCT. 177

an undecided and unsatisfactory state, till the following century, when the experiments instituted in the school of the Hunters finally and satisfactorily established the distinction between the two systems.

Connected with the anatomical discoveries of this period were those of Francis Glisson, Professor of Physic at Cambridge, who first observed the cystic duct, and, in his work on the Anatomy of the liver, published in 1654, gave a more exact description of that organ than had previously appeared. The discovery of the capsule of the *vena portarum* has also been ascribed to him, and bears his name, but erroneously, having been seen a little time before, by Pecquet and Walæus: Glisson was the first, however, to examine and describe it with accuracy.

A treatise on the glands, which was published in 1656, under the title of *Adenographia*, by Thomas Wharton, an English physician, contains a number of new and curious particulars relating to those organs, which added considerably to the stock of anatomical knowledge.

In a work on the Anatomy* of the human frame, published in 1657 by Nathaniel Highmore, we find several discoveries, for the merit of which that author has obtained a degree of credit which does not properly belong to him; as that of the great maxillary sinus which has been named,

* *Corporis humani disquisitio anatomica*, Fol. Hagæ Comitum, 1657.

after him, *Antrum Highmorianum*, although noticed before by Casserius, who had spoken of it under the name of the *Antrum genæ*. Highmore, however, was the first to suggest drawing a tooth in case of abscess within this cavity, for the discharge of the matter—which was afterwards practised by Cowper. Highmore was a graduate of Oxford, where he took his doctor's degree in 1642, and bore the reputation of a diligent anatomist and skilful practitioner.

Nicholas Steno, a Dane, described in 1662 the salivary duct belonging to the parotid glands as a discovery of his own, for which he has so far obtained credit that the duct has been named after him, although Blasius, in a letter to Bartholine, claims the discovery for himself, and says he first pointed out the duct to Steno. Steno however appears to have been the first to show the true structure of the muscular fibres of the membrane of the pharynx, which are arranged spirally in a duplex series, one ascending, and the other descending.

Amongst those who contributed to the extension of anatomical knowledge, few rank higher than the celebrated Malpighi, or Marcellius Malpighius, whose anatomical researches were extended from man to the minutest insect, and whose comprehensive mind grasped with equal vigour the colossal and the diminutive, the structure of the elephant, and the symmetry of the gnat. By his microscopic investigations he detected the glandular structure of the cortical por-

tion of the brain, and pointed out the true nature of the organ of taste. To him we are indebted for a correct knowledge of the cellular disposition of the lungs, and the formation of the substance of the liver. He also examined and described the structure of the spleen, although the discovery of the true functions of that mysterious viscus yet await the penetrating genius of a second Harvey for their elucidation. We also owe to him the first minute and accurate description of the kidneys, from which we learn the lobular nature of their structure, however we may dissent from his opinions respecting their final and minute organization. Malpighi taught that the glandular *acini* were hollow for the reception of the fluid secreted by the arteries distributed on their surface, from whence it is conveyed by an excretory duct; the union of a number of these forming the larger excretory canal. He regarded the mucous glands of the alimentary canal &c. as examples of the simplest form of glandular structure, from which the larger ones differ only by their greater complexity; being in fact only formed of an aggregate of simple ones. Ruysch denied this doctrine of Malpighi's, and maintained that these excretory ducts were merely continuations of the same tube; an opinion now generally adopted by anatomists.

In the year 1665 that distinguished anatomist Frederick Ruysch, to whose introduction of the art of making anatomical preparations with coloured injections, (which gave the freshness and appearance of life,) the science is so deeply in-

debted, published a treatise* on the lacteals and lymphatics, in which he embodied the result of his inquiries in the course of a controversy wherein he had been engaged in conjunction with Sylvius and Van Horne; the aid of his talents having been sought by these anatomists in combating the vanity of Bilsius, who came to Leyden, while Ruysch was yet only a student, to exhibit his boasted method of making anatomical preparations. In this work, in defence of Sylvius and Van Horne, Ruysch does not deny the previous notice of the valves of the lymphatics, but claims the merit of having first demonstrated and shewn how to discover them. The fame which this work obtained, procured him in the following year an invitation to fill the anatomical chair at Amsterdam, which his zeal for anatomical pursuits led him eagerly to accept: and from this period anatomy became the business of his life. The discovery of the injections which Ruysch so successfully employed in making those magnificent preparations that were the theme of universal admiration, originated with De Graaf, and was brought to farther perfection by Swammerdam; but if it was not the property of Ruysch himself, he certainly deserves the credit of having turned it to more practical and extensive account than either of the original projectors. His collection of injected bodies is described as marvellous, the finest tissue of the minutest capillary vessels being filled with colour.

* *Dilucidatio valvularum in venis lymphaticis et lacteis, cum figuris aeneis*, Hagæ Comitû, 1665.

ed substances so as to represent all the freshness of youth, and to imitate sleep, or rather a paroxysm of catalepsy, in place of death. Not only did he prepare in this manner, with a beauty almost rivalling that of nature, the entire bodies of infants, but even undertook, at the desire of the States General, to inject the body of Admiral Barclay who was killed in the action of the 1st of June, 1666, between the English and Dutch fleets.* Notwithstanding the increased difficulty of injecting an adult subject, together with the injury resulting from the wounds which occasioned the admiral's death, Ruysch succeeded so admirably in his preparation, that it appeared

* This action was fought between the English fleet of only sixty sail, under the command of the Duke of Albemarle, and the Dutch fleet of ninety-one sail, carrying 4,716 guns, and 22,462 men, under the command of the celebrated Van Tromp. Such was the Duke's eagerness to engage, that, notwithstanding the fearful superiority of force opposed to him, he commenced the attack before the Dutch had time to weigh, and compelled them to cut their cables. The advantage of the weather gage, which he fortunately enjoyed, was fully counterbalanced by the circumstance of his ships being unable to use their lower deck guns. Vice Admiral Barclay (or Berkley, as he is sometimes called) led the van in the *Swiftsure*, which was captured after he fell, early in the engagement, and thus his body came into the possession of his enemies, who, with a generosity which reflects honor on them, while it bears the strongest testimony to the merit of the fallen hero, resolved to restore it in a state worthy of acceptance, to his family, and Ruysch was accordingly directed to make an injected preparation of the body, which he did in so admirable a manner, as to attract universal admiration, and procure for him a recompence from the States General of Holland, proportionate equally to the dignity of those by whom it was granted, and the merit of him who received it.

with as great perfection as that of a new born infant, every part of the injected matter preserving its softness, flexibility and consistence, as though alive. It cannot then be a matter of surprise that Ruysch's museum should have been the most magnificent ever possessed by a private individual; or that, possessing such incalculable advantages, he should have made discoveries which had eluded the researches of former anatomists. Among the parts that he examined with the greatest minuteness, was the pulmonary circulation, in which he claimed the discovery of the bronchial artery, the structure of the brain, of the ear, and of the lymphatic and glandular system.— In 1685 Ruysch was appointed professor of physic, which appointment he retained with honor and reputation till 1728 when he had the misfortune to fracture his thigh by a fall. He also held the office of superintendent of midwives, in which capacity he introduced many beneficial regulations, and many improvements in that department, especially the abolition of the practice of speedily extracting the placenta, which he believed to be expelled by means of an orbicular muscle at the fundus uteri. His publications, which were numerous, were chiefly anatomical, and many of them controversial. He enjoyed good health till he had attained his ninety third year, when a fever closed his labours, in 1731.

Henry Meibomius, a skilful anatomist, who was born at Lubeck in June, 1630, and took his degree of doctor of Medicine at the University of Angers,

published, in 1666, a letter to Langelot,* in which he describes some vessels of the eyelids which he had recently discovered; and in this, as well as a variety of other publications, evinced an intimate acquaintance with the animal economy, and its disorders. From a letter which he published, addressed to Velschius,† he appears to have projected writing a history of Medicine, but the difficulties he encountered in collecting the necessary materials seem to have deterred him from proceeding with it. His edition at Helmstadt, in 1664, of Arnold de Boot's "*Observationes medicæ de affectibus omnis*," which had been previously published in London, derives an additional value from the notes and preface with which he enriched it.

Walter Needham, an English physician, in a work‡ which he published in 1667, gave an account of the membranes which envelope the fetus.

In 1669, Borelli, of whose medical works mention has been already made in the proper place, published a work, the object of which was to shew that the powers of the eyes are unequal in most men, objects appearing much more distinct with one eye than the other. In the following year his treatise "*De motionibus naturalibus a gravitate pendentibus*," appeared as a prelude to his great physiological work "*De motu anima-*

* De vasis palpebrarum novis.—Epistola ad virum celeb. Joëlem Langelotum. Helmstadt, 1666.

† De medicorum historia scribenda.—Epistola ad G. H. Velschium. Helmstadt, 1669.

‡ De formatu fœtus, 8vo. Lond. 1667.

tium," which was not published till after his death. In this work, the first volume of which, in 4to., appeared in 1680, dedicated to Queen Christina, (at whose expense it was printed,) he gave an excellent account of the manner in which fish row themselves forwards by the tail. The object of this work was to explain the animal functions upon mechanical principles. He supposed the muscular fibres to be vesicular; that the vesicles become distended by a portion of the nervous fluid entering and fermenting with the blood they contain—thus producing a swelling of the muscle, and shortening of its fibres. He measured the individual force as well as the collective power of the fibres, which is immense, according to his estimate. He explained how this power was influenced by the manner in which the fleshy fibres are inserted into the tendons. The power of the heart in propelling the blood he estimated at one hundred and eighty thousand pounds weight. Although far from correct in these and other calculations, his general doctrines kept their ground for a long time among medical men, and the effect of medicines was long believed to be capable of explanation upon mechanical principles.

John Swammerdam, of whom mention has been already made, (when we were speaking of Ruysch,) as the original inventor of that admirable composition which Ruysch employed in making his anatomical preparations—had been in early life a zealous anatomist and an able entomologist; dissecting, with a dexterity peculiar to himself, the most minute insects, with instruments of his own con-

trivance. He had been designed by his father, who was an apothecary at Amsterdam, for the church; but his inclination led him to the study of medicine and natural history, especially entomology, his passion for which last induced him, almost while a child, to make many excursions for the purpose of enlarging his collection of winged insects. During his residence at Leyden, he particularly distinguished himself by his close attention to anatomy, and his singular skill in making preparations. He was a fellow pupil of Regnier de Graaf's under the celebrated Van Horne, who was professor of anatomy there—and made great progress in the art of dissection. Previously to taking his degree, he visited Paris for improvement, and there formed an acquaintance with Steno: and on his return to Leyden he took his doctor's degree, selecting for his thesis the subject of respiration. It was at this period he began to employ his composition for injecting subjects, by means of which he rendered visible the capillary arteries and veins of the face. Religious scruples, however, prevented his persisting long in the use of this valuable invention. His vanity, however, preponderating over his religion, led him to communicate his discovery to Ruysch, who availed himself, as we have already seen, most amply of its great advantages. In 1672 he published his work on the female uterus,* which has been frequently reprinted. Intense application

* *Miraculum naturæ, seu uteri muliebriæ fo'*
J. V. Horne prodromum illustratum, 4to. Lugd

now made him hypochondriac, and unfit for society; and in this state he became so impressed with the reveries of Antoinette Bourignon as to plunge into the depths of mysticism. He so injured his constitution by mortifications, that he died in 1680, at the age of 43.

Regnier de Graaf, the fellow-pupil of Swammerdam, and the friend and intimate acquaintance of Ruysch, was the original contriver of those injections which Swammerdam brought to perfection, and Ruysch employed to so much advantage. De Graaf had been led, in the first instance, to employ these injections for the purpose of discovering the motion of the blood in the vessels; and to accomplish this object, he contrived a new species of syringe, by means of which he was able to inject the vessels with some high-coloured substance, which clearly pointed out the course of the circulation. De Graaf's injection not, however, keeping the vessels permanently distended, but, from its too great thinness, making its escape after a time, fell into disrepute; till Swammerdam, observing the cause of the defect in de Graaf's preparation, proposed to remedy it by employing some cetaceous matter as a vehicle for the colouring matter, such as, though sufficiently liquid, while warm, to penetrate the most minute ramifications of the vessels, becoming solid when cool, would keep them permanently distended without the possibility of loss from percolation and evaporation. In the attempt to accomplish this we have already seen how fully he succeeded; and the light which this

invention has thrown upon anatomy, together with the important discoveries to which it has led, sufficiently attest its great importance.

De Graaf, the original introducer of this valuable auxiliary to dissection, was the son of an architect residing at Schoonhove, in Holland. Here Regnier was born, on the 30th of July, 1641, and commenced his studies at Leyden, but took his doctor's degree at Angers, in France, about the year 1665; having published three years before, when only at the age of twenty-two, a Dissertation on the subject of the pancreatic juice, which gained him great credit. On his return to Holland he settled at Delft, where his success in practice gained him much envy. He published three Dissertations on the Organs of Generation in both sexes, which involved him in a controversy with his quondam fellow-pupil, Swammerdam. He died in August, 1673, at the early age of thirty-two, leaving behind him several works which are much esteemed, and were published at Leyden in 8vo. 1677 and 1705.

In 1674 William Briggs, a native of Norwich, and fellow of Bennet College, Cambridge, published a *Treatise on the Eye*,* in which he pointed out a discovery he had made, that in the *tunica retiformis*, which is contiguous to the vitreous humour, the expanded filaments of the optic nerve lie in the most regular order, and that they continue to retain this order when afterwards

* *Ophthalmographia, sive oculi ejusque partium descriptio anatomica, cui accessit nova visionis theoria.* 8vo. (antab). 1674.

united in the nerve, and preserve it unbroken till they reach the brain. The chrystalline humour had been previously discovered to be a double convex lens, formed of two segments of unequal, but not perfectly spherical spheres, as the ancients imagined. Thus Briggs's discovery explains why all the images are carried so distinctly to the brain. Briggs also described in this work the ducts by which moisture is conveyed from the glands in the angles of the eyes, to lubricate those organs, and facilitate their motion within their orbits.

Bernardine Genga, the author of an anatomical work,* published at Rome in 1675, was a strenuous advocate for Harvey's Doctrine of the Circulation, the discovery of which he stoutly maintained to have been made by Father Paul Sarpi, though he adduces no adequate evidence in support of the fact. Through his exertions, however, Harvey's doctrines gained ground in Italy. Genga had the courage to charge Hippocrates with committing errors in the treatment of several surgical cases, such as the veriest tyro among the moderns would be ashamed of.

The first accurate account of the glands, which secrete, in a state of health, a mucous fluid for lubricating the intestines, and which, in cases of the exhibition of purgatives, or occurrence of diarrhœa or dysentery, furnish the extraordinary discharge which takes place,—was given by John Conrad

* "*Anatomia chirurgica*," or "*Istoria dell' ossa e muscoli del corpo umano, con descrizione de' vasi*." Roma, 1675.

Peyer, a native of Schaffhausen, in a work* on this subject, first published at his native town in 1677. He also gave an account of some experiments he made upon the pancreas, in a tract contained in the *Bibliotheca Anatomica* of Le Clerc and Magnetus.

A valuable work on Morbid Anatomy, containing a vast number of dissections of persons who had died of the effects of disease, and throwing great light upon the hidden causes of illness, was published in 1679, at Geneva, in two volumes, folio, by Theophilus Bonetus.

Some useful observations on the tongue, salivary glands, larynx, diaphragm, intestinal canal, mesentery, thoracic duct, lymphatics, kidneys, &c. were made by Christopher Gunther Schellhammer, for some time professor of physic at Jena, in his Introduction to Physiology, published at Helmstadt in 1681; in his book on Hearing, published at Leyden in 1684, and in his Dissertation on the Origin of the Lymph, &c. inserted in the *Bibliotheca Anatomica*.

Blancard, of whom notice has already been taken for the compilation of his useful Medical Lexicon, gave to the world, in 1688, a duodecimo work on Anatomy, containing a number of judicious observations compiled without acknowledgement from others: he describes in it about two hundred cases, most of which are extremely curious.

*The Myotomia reformat*a of William Cowper,

* *Exercitatio anatomico-medica de glandulis intestinorum.* Schaffhauser, 1677.

an eminent surgeon of London, which first appeared in 1694, although by no means to be compared with the later works of Albinus, far exceeded all the similar works which had preceded it, not only by its superior accuracy, but by its containing descriptions of many muscles not before noticed. The publication of his "*Anatomy of the Human Body*," in folio, at Oxford, in 1697, involved him in a controversy with Bidloo, a Dutch anatomist, in consequence of his having employed impressions of the plates belonging to Bidloo's great anatomical work, to illustrate it, to which he added forty figures engraved from drawings of his own. We shall find occasion to return to this controversy presently, when we come to notice Bidloo and his works. In this splendid work Cowper greatly improved and corrected Bidloo's descriptions of the figures, and added some ingenious and valuable anatomical and surgical observations of his own. Cowper, in the course of his Reply to Bidloo's complaints of the dishonourable piracy of the plates of his work—described two new glands in the urethra, which have been named after him—*Cowper's mucous glands*. Cowper, also, was the first who gave a representation of the thoracic duct as it is found in the human subject; preceding anatomists having taken their delineations only from brutes.

In a work on the anatomy of the brain, published in 1695, by Henry Riely, a fellow of the College of Physicians, we find several remarks on matters which had escaped the observation of Willis and

Vieussens, with an account of the animal functions, muscular motion, &c.

In 1697, a theory of muscular motion which corresponds so closely with that of Borelli, that it would almost appear to have been borrowed from it, was broached by Richard Boulton, a practitioner of medicine and surgery in Chester, in his "*Treatise on the cause of Muscular Motion*," published in duodecimo. He therein attempts to account for it on the supposition of its arising from a commixture of the blood and nervous fluid, in certain glands, which he supposed to exist in the fleshy parts of the muscles. The learned theorist forgot, however, the necessity of demonstrating the actual existence of such glands, or those particulars in the properties of the blood and nervous fluid which predisposed them on admixture, any more than before admixture, to excite muscular motion; and he talked of the nervous fluid as though its existence were real, not hypothetical.

Notice has been already taken of Godfrey Bidloo, a native of Amsterdam, a professor of anatomy and surgery at Leyden, where he published in 1698, a quarto volume of observations upon the animalcules found in the liver of sheep. It was his great anatomical work which he published in folio, with 105 magnificent anatomical plates, in 1683, that occasioned the controversy with Cowper already spoken of. Cowper, it appears, purchased 300 impressions of Bidloo's plates for the illustration of his own work; of this fraud Bidloo very naturally complained in his "*Gulielmus Cowper citatus coram tribunal: 4to. Lugd. Batav.*

1700,"—to which Cowper replied in his "*Eucharistia*," a work still in great request, but in which he made a most impotent attempt at defence, by pleading, that he had believed the plates, when he purchased them, to have belonged to a projected work of Swammerdam's, who, being dead, could not benefit by the plates, or publish the work to which they were designed as an accompaniment. Had this really been the case, the fact should have been frankly avowed in the work to which he annexed them, and he should not have waited for Bidloo's charge, three years after, to wring the tardy admission from him. But the fact, as Cowper well knew, was quite the reverse; and it must in candour be admitted, that the conduct of our countryman does not allow of the slightest justification, notwithstanding the service he did to science, in correcting a multitude of errors and inaccuracies in Bidloo's explanations. Many of these (which were so gross as to call forth the animadversions of Bidloo's own pupil, de Ruysch,) arose from his greater attachment to the pleasures of the table than to study. With all its faults, however, it was a valuable and important work.

CHAPTER XIII.

Progress of Botany, Pharmacy, &c. during the Seventeenth Century—Basil Besler—Campi—Brunn's *Systema Materia Medica*—Hoffman, his hostility to Chemical Medicines—Charas; publishes an Analysis of the Theriaca; an account of his Experiments on the Viper; and his *Pharmacopœia*—Tillingius—Tournefort—London Pharmacopœia—Dales' Pharmacologia.

THE science of botany did not advance with anything like the rapidity which might have been expected from the stimulus given to it by Gesner, Clusius, Cæsalpinus, and the other great reformers of science during the preceding century; and the seventeenth century hardly furnishes anything of importance to notice. The first work which deserves to be mentioned is the splendid folio "*Hortus Eystensis*," published by Basil Besler at Nuremberg in 1612, and containing 356 atlas folio plates, on which were delineated 1533 figures of plants, engraved at the expense of Conrad, the Bishop of the Diocese. It contains, however, a large proportion of errors.

In 1623, Michael and Balthasar Campi, two eminent botanists of Lucca, deeply read in the works of Dioscorides, as well as those of the Ara-

bians, compared their descriptions with the plants kept under their names in the shops, and thus detected and pointed out a multitude of errors; and, in their excursions over the Alps and Appenines, made discoveries of many new plants. In their "*Nuovo Discorso*," published in 1623, they gave an investigation of several of the ingredients in the composition of the mithridate, and in their "*Specilegio Botanico*," published in 4to. in 1650, endeavoured to prove the *Cinnamomum* of the moderns to be altogether different from that spoken of by Dioscorides.

In 1630, a pharmaceutical work,* which has gone through repeated editions, from the high estimation in which it was held, was published at Basil, by John James Brunn, a physician of that place, and successively professor of anatomy, botany, and the practice of medicine. An edition with notes by Gerard Blasius was published in 1680.

Caspar Hoffman, in 1667, published his work on officinal medicines, with a dedication to the celebrated Guy Patin, wherein he discusses the question of the comparative merits of law and medicine, and, after quoting Aristotle, decides the question of superiority in favour of medicine. In his preface, he finds great fault with the chemical and mineral preparations employed in medicine, observing that the distilled waters,

* *Systema Materiae Medicæ, continens Medicamentorum simplicium et compositorum seriem ac sylvam, methodo mendiendi ac formulis remedium præscribendis accommodatum.* 8vo. Basil, 1630.

from the empyreumatic impregnation which they more or less contain, are injurious to weak stomachs; that the distilled oils are dangerous, from exciting inflammation; and that spirit of wine, from whatever substance it may be obtained, is injurious to the liver, and produces dropsy, and other fatal maladies in a few months: as for antimony, arsenic and mercury, he regards them as so many deadly poisons; the clear inference from all which is, that the unsophisticated productions of the vegetable kingdom are alone to be relied upon: and he concludes with a solemn adjuration to his reader, whether a physician, a surgeon, or an apothecary of sound understanding, to confide, next to God, in his own conscience, which directs him in the words of Hippocrates, "*Morbis non obesse, si prodesse non possis.*"

In 1668, Moses Charas, an eminent chemist and pharmacist, published a chemical analysis of the *Theriaca Andromachi*, with a distinct account of its several ingredients. He had the good sense to discover that it derived all its activity from the opiates and spices which entered into its composition, and hence decided, contrary to the received opinion, that age impaired its qualities. In the following year he published an account of new experiments on the viper, in which he states that a drop of the oil of tobacco introduced into a wound given to that reptile is instantly fatal to it. He gives a neat anatomical description of the viper, not omitting the poison bag, but maintains that its contents only become poisonous through the irritation of the animal—in direct contradiction

to the experiments of Signor Redi, which prove that when taken from a *dead* viper, and introduced through a quill into a wound, it is as malignant as when introduced through the fang of the enraged reptile. In the same year he published his "*Pharmacopée Royale, Galénique et Chymique*," in two vols. 8vo. which, with his other works, has gone through many editions.

In 1679, Matthias Tillingius published his account of the plant * whose roots yielded the rhubarb of the shops, in a small thick 4to volume, with a portrait of the author, which does not appear to flatter his beauty, and two figures of rhubarb, in praise of which little can be said. In the preface he gives a curious account of the various productions of China; and in the first part of his work gives a learned disquisition respecting the origin of the name of the plant; after which, in the succeeding chapters, he explains its characters, uses, and the cases to which it is applicable.

In 1684, the celebrated Pitton de Tournefort published his elements of botany; but nevertheless botany continued to languish as a science, till kindled into animation by the Promethean touch of the great Linnæus.

The edition of the pharmacopœia,† published in 1689 by the College of Physicians, marks the scanty improvement which had been made in this

* *Rhabarbarologia, seu curiosa Rhabarbari disquisitio*, 4to. Francofurti ad Moenum, 1679.

† *Pharmacopœia Collegii Regalis Londoni remedia omnia, succincto descripta. Editio altera priori castigatior et auctior*, Lond. 1689.

important department of medicine; a fact which will be readily admitted, when it is stated that the ingredients in one preparation, the famous *Theriaca Andromachi*, exceed sixty in number. Among the contents of this Pharmacopœia it will be sufficient to notice the *Aqua Lumbricorum*, prepared from living earth-worms, digested in a water-bath; the *Aqua omnium florum* prepared from cow's-dung fresh-gathered in May; and the *Aqua Ranarum*, from living frogs caught in the beginning of April.

The pharmacologia of Dr. Samuel Dale,* first published in 1693, serves in a great degree to redeem the absurdities of the Pharmacopœia of the college, and contains a mass of useful facts connected with the Materia Medica and Pharmacy, which would not disgrace a later period and more enlightened age.

* Pharmacologia, seu Mauductio ad Materiam Medicam. 4to. Londoni, 1737: Editio tertia.

CHAPTER XIV.

Progress of Medicine and Surgery during the Eighteenth Century—Boerhaave appointed to the Medical Chair at Leyden: reputation of his works—Deventer: his Improvements in Midwifery—Astruc, his Theory of Digestion: his opinion respecting the contagious Character of the Plague: his Work on Syphilis: doubts respecting Inoculation: Treatise on Tumours: on Diseases of Females: considers Conium as possessing little efficacy in Cancer—Arbutnot: his Paper on the Equality of the Births of both Sexes—Mead: his Treatise on Sol-lunar Influence: on Poisons: on Plague—Armand: his obstetric Net—Boccacini revises the Practice of Magatus—Anel: his Apparatus for sucking Wounds—Lotminius: his medical Observations, and Treatise on Fevers—Heister—Allen—Oliver: remarkable Case of Somnolence—Cheneyneau: his Doctrine of the non-contagious Nature of the Plague—Cheyne—Van Swieten—Freind—Douglas—Barry: cold Water a Cure for Disease—Blondel's Controversy with Turner—Denys—Chamberlen's Forceps—Clifton—Breslaw Fever—Boerhaave—Haller—Bruhiere—Cosme—Doevoren—Huxham—Medical School at Philadelphia—Rush—Legitimacy—Heberden—Galvanism—Le Blanc—Buchan—Vaccination—Cullen—Brown—Gregory—Galvani.

THE march of improvement advances with such an accelerated pace, and the acquisitions made by knowledge in Medicine, as well as every other department of useful learning, crowd so upon us as we descend the stream of time, and near the confines of our own days, that a regard to confining the present volume within reasonable li-

mits renders it necessary to abridge the transactions of the eighteenth century within the narrowest practicable limits, and to terminate the work with the close of the century. Such, indeed, are the multitude and importance of the several discoveries and improvements made during this century, that in place of crowding the whole promiscuously into the concluding portion of a work, which many readers may consider as sufficiently voluminous without addition, they deserve, at least, to be made the subject of a distinct volume; and many of them might be fairly regarded as entitled to separate volumes for their individual consideration.

Upon the death of Drelincourt, who had long filled the chair of Medicine at the university of Leyden, in 1701, the celebrated Herman Boerhaave, of whom mention has already been made in a former chapter, although but recently established in practice, and hardly as yet known to fame, was nominated his successor. Before obtaining this appointment, which gave him ample scope for the display of his great and splendid talents, Boerhaave, like others when first entering on practice, had more leisure than, perhaps, was altogether desirable. To a mind however, constituted like his, this was, after all, no disadvantage. He accordingly embraced the opportunity thus afforded him of reviewing the various medical theories which had been broached from time to time, out of which he digested one v superseded all the rest, and held an und sovereignty in the medical world for upw

half a century. On taking possession of the chair, to which he had been so recently and so honourably appointed, Boerhaave delivered an inaugural dissertation, in which he recommended the study of the works of Hippocrates, whom he chiefly admired for the correctness of his descriptions—the patience with which he attended to the indications of nature, and the peculiarities of the constitution, to which he frequently committed the cure of disease with little interference on his own part—and the unsophisticated honesty with which he recorded the termination of his cases, whether favourable or the reverse. Such was the rapidity with which Boerhaave rose to fame after his appointment as professor, that in 1703 we find him receiving an invitation from Groningen to accept a professorial chair in that university, an honour which he declined from a patriotic preference for his own country, and for the university which had first distinguished him by the cheering encouragement of its approbation: while the university, to mark the sense entertained of the preference thus strongly evinced, raised his salary as professor. It was about this time that he published his *Discourse on the Use of Mechanical Reasoning in Medicine*. His compositions, which were drawn up with care, and distinguished for the classic purity of their style, being published, contributed not a little to the extension of Boerhaave's reputation. On the death of Peter Hotton, the curator of the university garden, in 1709, the professorship of botany which he had held, together with the care of the garden, was given to

Boerhaave, who delivered on this occasion his third admirable oration,* in which he explained the utility of attending to facts and observations as the best means of promoting medical knowledge; and the superiority of simplicity in prescription over the complex and unscientific formulæ then in vogue. In this year, also, appeared his celebrated Aphorisms,† a work which has been deservedly admired and universally read: and upon which Van Swieten, who had been his pupil for a period of nearly twenty years, afterwards published his Commentaries. About the same time, also, he published his "*Institutiones Medicæ*."‡ Such was the reputation of these works, that, besides going through numerous editions, they were translated into almost every European language, and even into Arabic.

Boerhaave had now attained to the meridian of his fame, and pupils flocked to him from every part of the world. He lectured on the theory of medicine, on botany, and on chemistry, with a clearness and precision that at once surprised and delighted Haller, who attended him for two years, and pronounced him to be one who "*vir sui parem habuit*," was almost unequalled.

In 1713, on the death of Bidloo, he succeeded him in the professorship of the practice of medi-

* Oratio quâ repurgatæ medicinæ facilis asseritur simplicitas.

† Aphorismi de cognoscendis et curandis morbis. 8vo. Lugd. Batav. 1709.

‡ Institutiones rei Medicæ in usum annuæ exercitationis domesticæ.

cine, and in 1718, he succeeded to the professorship of chemistry; so that he was now at the head of every branch of medicine; and the number of his pupils had increased to such a degree, that the town of Leyden was almost insufficient for their accommodation. In addition to the enormous demands upon his time, occasioned by this multiplicity of occupations, he was in the habit of being applied to for advice in difficult and dangerous cases by physicians in almost every part of the world. He was, as Macquer testifies, the most eminent chemist of his age, next to Stahl. His luminous understanding and comprehensive genius threw a flood of light upon every subject which he touched, and to his view of chemistry we are indebted for the finest and most methodic analysis of vegetables. Equally exalted was his moral character, and he was not unaptly compared to Socrates, to whose bust he bore a striking resemblance. Piety formed the distinguishing feature of his character, and devotion constituted his daily exercise. Athletic in form, and constitutionally prone to obesity, he accustomed himself to exercise on horseback, and to passing as much of his time as possible in the open air; by which means, united with the most rigid abstemiousness in diet, he had been enabled to sustain uninjured the enormous fatigue of his professional avocations: but his disposition to corpulence at length gaining ground, and his constitution beginning to yield to the assaults of time, he found himself obliged to resign his professorships of botany and chemistry in 1729. On that occasion he delivered

his valedictory oration;* in which he gave a sketch of the more prominent features of his life, and spoke with gratitude of the favours he had received both from individuals and from those of his own profession, who had received his improvements with more kindness and less opposition than usually fell to the share of innovations. Never, indeed, had so great a revolution been effected in science with so little opposition as that accomplished by the talents of Boerhaave. — In the year preceding the resignation of his professorships, he had been chosen a foreign associate of the Royal Academy of Sciences, at Paris; and in 1730 he was elected a fellow of the Royal Society of London. In this year he was also again appointed rector† of the university, and at the expiration of his office delivered, as usual, an oration, in which he urged the necessity of attending to nature in the cure of disease.

His latter years were chiefly passed in domestic relaxation at a country seat he possessed near Leyden; where he was attacked, towards the close of 1737, with difficulty of breathing, accompanied with a sense of suffocation, which progressively increased; and, within a short period of his death, he perceived a strong pulsation on the right side of his neck, which he ascribed to a polypous concretion in the aorta, but which more probably resulted from aneurism. He expired, at length,

* *Oratio cum cathedræ Chemiæ et Botanices valediceret.* 4to. Lugd. Bat. 1729.

† He had filled this office before, in 1714, and, on laying it down, read his Discourse, "*De comparando certè in physicis.*"

with the utmost calmness, in the midst of his family, on the 23d of September, 1738, exhibiting a brilliant example to the world of the confidence and tranquillity with which a christian philosopher can resign his soul in the hands of him who gave it.

In the same year in which Boerhaave commenced his noble and useful career as a professor at Leyden, Henry Deventer, one of the most successful and distinguished surgeons and accoucheurs of his day, gave a Latin translation of a work upon Midwifery,* which he had previously published in Dutch, in 1696.

In this work he detailed the various and important improvements which he had introduced into practice; and thus, as well as by his various mechanical contrivances for correcting or preventing bodily deformity in young subjects, he acquired great reputation. Deventer, finding that the secret of the forceps, introduced into practice by the Chamberlens, could only be purchased at a most extravagant price; and being aware, besides, of the injurious effects resulting from too frequent an employment of instruments in delivery, declaimed warmly against it, and contended that the greatest obstacle to delivery arose from the oblique position of the uterus. In all cases of difficulty, where the head was not forced down so low as to render it impracticable, he passed his hand into the uterus, turned the child, and delivered it by the feet: but if this was impracticable, he introduced his left hand into the back

* *Operationes Chirurgicæ, novum lumen exhibentes obstetricantibus*. 4to. Lugduni Batavorum, 1701.

part of the vagina, and gradually pushed back the *os coccygis*, so as to enlarge the aperture. Where, however, the pelvis proved to be distorted, even this would be as ineffectual as Chamberlen's forceps; and both the doctrine and the practice have been long since exploded. Indeed, Deventer's plan of forcing back the bone was liable to a multitude of objections, since, with whatever delicacy it was done, it was apt to produce either abscesses, or incurable lameness: and it would almost appear as if some such accidents had occurred to Deventer himself in the course of his practice, for latterly he admitted the necessity of sometimes opening the head of the fœtus, and extracting it with a crotchet.

When an arm presented, Deventer was in the habit of passing his hand into the uterus, and delivering the child by the feet, in place of the cruel and unnecessary practice recommended and indeed adopted by former writers, of twisting the limb violently off. Deventer taught his pupils to distinguish between true and false labour pains, and to allay the former by gently evacuating the bowels by mild injections, and eccoprotic medicines, together with the exhibition of one or more of his anodyne pills, the composition of which he kept secret for a long time. These were all important improvements, and gave him a decided preference over Mariçeau, who was almost his immediate predecessor.—In 1724, he published a second part of his work on midwifery;* and both

* *Uterius examen partium difficilium · Lapis Lydius obstetricum : et de necessaria cadaverum incisione*, 4to. Lugd. Bat. 1724.

parts were republished together in 1733, accompanied with many improvements and additions, after having been translated and published in most parts of Europe. A posthumous work of Deventer's on Rachitis, or Rickets, which is well spoken of by Haller, appeared in 1739.

In the year 1702, John Astruc, a native of Sauve, in lower Languedoc, who had just taken the degree of bachelor of medicine, at Montpellier, published a dissertation "*De motus fermentativi causa*," followed soon after by a variety of controversial pieces on the nature of digestion, which he accounted for upon the hypothesis of a fermentation excited by a peculiar kind of leaven—contrary to the doctrine of Pitcairne and others, who ascribed it to the mechanical action of the abdominal and other muscles. Astruc was raised to the chair of medicine and anatomy at Toulouse in 1710, but, on the death of Chatelain in 1716, returned to Montpellier, to supply the vacancy thus made. In 1720, he published a work on hydrophobia, and, in the following year, a treatise upon epidemics, and especially the plague;* in which he asserts the contagious nature of plague in opposition to other writers. He imagined that there was a certain analogy between the plague and syphilis. About this time a violent dispute arose on the question of privileges between the physicians and surgeons in Paris, in which Astruc took an early and active part, and shewed, from

* Sur l'origine des maladies épidémiques, principalement de la peste. 1721. Dissertation sur la contagion de la peste. 8vo. Toulouse, 1724.

documentary evidence, that it had been the practice formerly for the surgeons to undergo an examination by the physicians, before they obtained a licence to practice. Astruc received an invitation to Poland in 1729, from Augustus II, who made him his physician: but, finding his situation there unfavourable to his studies, he returned to France, and settled in Paris, where, in 1730, he received the appointment of consulting physician to the King, and soon afterwards succeeded Geoffroy in the chair of medicine, at the royal college, where his high reputation brought him numerous pupils. In his memoirs for a Natural History of Languedoc,* he gave a particular account of the mineral waters of Balaruc: and, in 1743, he was admitted a member of the faculty at Paris. His "*Tractatus pathologicus*," published in 1745, and "*Tractatus therapeuticus*," in 1748, although favourably received, and eminently popular at the period of their appearance, have now become obsolete. It was his treatise on syphilis† which raised his fame to the full meridian of its splendour, and has inseparably linked his name with that insidious and formidable malady. This was seized with avidity at the first moment of its appearance, and was soon translated into all the modern languages, as containing the most complete history, description, and treatment of this complaint which had ever appeared. In the first part of this work he adopts the opinion that the complaint was of recent origin, perfectly

* Mémoires pour l'Histoire Naturelle de Languedoc, 1737.

† De Morbis veneris, Paris, 1740.

distinct from leprosy, and every other disease, and had been introduced by the companions of Columbus from America; an opinion which had been the subject of much controversy at that period. The negative, indeed, had been attempted to be maintained by passages taken from ancient writers, which were imagined to point out the malady in question from their containing some obscure notice of one or two symptoms, remotely resembling those of syphilis. Astruc, in opposition to these arguments, brings forward evidence* to show that it was first introduced into Spain from Hispaniola and other West Indian islands, towards the close of the fifteenth century, whence it was carried in 1495 to Naples, during the war between Ferdinand of Arragon and the French, by some Spanish troops who had brought it from Hispaniola, and by whom it was communicated to some of the Neapolitan women with whom both French and Spaniards had intercourse, accordingly as, during the fluctuations of war, the town changed masters. In this manner did this odious complaint spread to both armies, and thence gradually extended, through the medium of commercial intercourse, nearly over the whole world.

In a former chapter of the present work, will be found some discussion of this question, in which it is considered in the same point of view which Astruc has taken of it; and what tends strongly to corroborate the opinion now

* De Morb. vener. lib. 1. cap. 10, 11.

pretty generally admitted of its West Indian origin, and modern introduction, is a circumstance stated by Meade, in his Essay on the origin of the small pox, where he says he had been assured by a merchant who had been long residing in Russia, that syphilis was hardly known in that extensive empire before the time of Peter the Great, in consequence of the trifling intercourse which subsisted between them and foreigners. But no sooner had Peter adopted the resolution of visiting other parts of Europe, and sending numbers of his subjects abroad to learn trades and manufactures, than these people, on their return to their own country, carried back with them this dreadful contagion, which spread rapidly, and raged more severely, in consequence of the severity of the climate.*

For the cure of this formidable complaint Astruc placed his entire dependence upon mercury, which he regarded as a specific, and preferred its introduction into the system by friction with the ointment to every other mode.

Shortly after the appearance of his celebrated work on syphilis, Astruc published anonymously doubts respecting small pox inoculation,† addressed to the faculty: and in 1759, a treatise on tumours,‡ followed by two letters, the first of which treats of the composition of certain remedies, and

* Meade's Medical works, page 231.

† Doutes sur l'inoculation de la petite vérole, proposés à la Faculté de Paris.

‡ Traité des tumeurs, avec deux lettres, la 1^{ère}. sur la composition de quelques remèdes, la 2^{de}. sur la nature et les succès des nouveaux remèdes qu'on propose pour la guérison des maladies vénériennes: 1759.

the second, respecting the nature and success of certain new remedies proposed for the cure of syphilitic affections. This is a work of very considerable merit, in which he treats at large of hydatids voided either by stool, or discovered in the liver of those who had died of atrophy. He is one of the first writers who exposed the absurdity of the popular opinion which refers moles and other accidental marks to the force of the maternal imagination exerted during pregnancy. His work on the disorders incident to females,* together with that on midwifery,† which he did not live to complete, have both been translated into English. Astruc had tried *Conium* without effect in cancerous cases, and was of opinion that it was indebted for its reputation to the circumstances of pseudo-schirrous tumours yielding to its exhibition: an opinion which has been confirmed by modern experience.

Astruc was a constant attendant at the meetings of the faculty at Paris, and a strenuous assertor of their rights. As a writer he united great depth of genius with extensive research. His mind possessed singular activity, and his constitution was naturally robust, by which means he was enabled to continue his medical practice nearly to the moment of his death, which took place in his eighty-second year, on the 5th of May, 1766.

In 1704, a paper by the celebrated Dr. John Arbuthnot, (whose name the muse of Pope contributed to immortalize,) on "*The constant regu-*

* *Traité des Maladies des femmes.* 12mo. 6 vols. 1761.

† *L'art d'accoucher réduit à ses principes.*

larity which is observed in the births of both sexes," was read before the Royal Society, and published in their Transactions. In this paper the doctor states that, notwithstanding the existence of a small excess on the part of the male births, he conceived that, from the more hazardous nature of their occupations, their numbers at an adult age were nearly equal: from which he necessarily concludes that polygamy is contrary to the law of nature, as well as of justice; and that it has a direct tendency to lessen the increase of the human race; thus furnishing an unanswerable reply to the arguments in favour of polygamy, contained in Madan's celebrated "*Thelyphthora*." This paper gained Arbuthnot his election as a member of the Royal Society, and procured him a greater intimacy with the more eminent literary characters of the day. Shortly after, he was called in to attend Prince George of Denmark, in consequence of the indisposition of the Prince's own attendant, Doctor Hannes, and, by his success in this case, attracted the notice of the Queen, who in consequence appointed him one of her physicians in ordinary. His practice, however, does not appear to have been very extensive, since he found leisure for an excursion to Paris, on his return from which he distinguished himself chiefly as a wit among the constellation of geniuses, who adorned the Augustan reign of Queen Anne. In 1731, he published the first edition of his "*Essay on the Nature of Aliments*," and in the following year, his Essay "*On the influence of air on the Human Body*," both of which are founded upon the then prevailing

doctrine which had been introduced by Boerhaave. A second edition of the former of these essays appeared in 1732, with the addition of "*Practical Rules of Diet in the various constitutions and diseases of the Human Body.*"

Arbuthnot had been for many years a martyr to asthma, upon which dropsical symptoms supervened; this induced him to remove to Hampstead in the hope of finding relief: disappointed however in this object, he returned to his house in town, where he at length sank under his sufferings on the 27th of February 1735.

During the whole of his painful and distressing illness the natural serenity of his character, supported by that spirit of piety which had so pre-eminently distinguished him through life, never once deserted him; and was strikingly displayed, in conjunction with his ardent love of virtue and detestation of meanness, in his very latest letters. The disinterestedness and generosity of his character, added to the amiability of his disposition and conviviality of his humour, justly endeared him to all his friends, by whom his death was long and deeply deplored; and Swift, one of the number, feelingly complains of being in illness

"Far from his kind Arbuthnot's aid,
"Who knew his *art*, but not his *trade*,"—

thus elegantly complimenting him at once on his professional skill, and generous disregard of gain.

Richard Mead, the descendant of a considerable family in Buckinghamshire, and born at

Stepney in August 1673, published in 1704, his treatise on sol-lunar influence, founded upon the principles of planetary attraction, then recently demonstrated by the researches of Sir Isaac Newton. The influence of lunar attraction in modifying the complaints to which humanity is subject, is an opinion which has prevailed more or less among men in every age and every country; and is doubtless one of those opinions which man carried with him, from the original cradle of his race, within, or upon the confines of the tropics, (where the influence of lunar attraction both on the animal and vegetable creation is too striking to have escaped the dullest comprehension,) through the various migrations and dispersions of his species over the face of the globe. Mead, in the tract in question, furnishes many striking proofs of the reality of this sol-lunar influence in disease, observing—"when I was physician to St. Thomas' Hospital during the time of Queen Anne's wars with France, several of the sailors of our fleets were brought thither, and put under my care for epilepsy,"—most of whom were new men, who had contracted the disease by frights either in sea engagements or in storms. But the moon's influence was so visible on the generality of them, at the new and full, that I have often predicted the attacks of the fits with tolerable certainty. And T. Bartholine* tells a story of an epileptic girl, who had spots in

* Historia Anatom. Gentur. 2. Hist. 72.

her face, which varied both in colour and magnitude, according to the time of the moon. So great, says he, is the correspondence between our bodies and the Heavens."* Without entering into abstruse reasoning to establish a fact notorious to all who have ever resided within the tropics, and paid the slightest attention to the operations of nature, it may be sufficient to observe that more than one medical writer of our own days has remarked the striking coincidence between the instant of death and the turn of the tide, especially in those places which are nearest to the equinoctial; and, even in Italy, the effect of the moon upon shell fish was noticed, as far back as the time of Augustus, by Horace; to the accuracy of whose remark that "*Lubrica nascentes implent conchylia Luna*,"† every West Indian can bear testimony, it being well known to them that the sea eggs, a species of esculent echinus, much esteemed, are not in a condition for the table at any other time than the full of the moon. The writer of this has himself experimentally ascertained the influence of the moon upon vegetation, by accurate observation upon the growth of the *convolvulus dissectus* during the increase and decrease of that planet. Indeed every lunation within the tropics furnishes in its four quarters an epitome of the four seasons, more or less

* The Medical Works of Richard Mead, M.D. 8vo: Dublin, 1767, page 132.

† Sat. 4. Lib. 11. vers. 30.

strongly marked as we approach to or recede from the line, and more or less decided in its effects in proportion as the operation of each is strengthened or counteracted by the influence of the sun dependent upon his position in the zodiac. This modification of the lunar influence the writer particularly experienced in the course of some experiments he made upon the medicinal properties of the bark of the root of the *Piscidia Erythrina*, or Jamaica dog-wood, the tincture prepared from which, when gathered at the full moon in April, when the tree is in flower, but before the foliage has appeared, is a powerful anodyne and narcotic, while the tincture prepared from the bark gathered in July or August, is utterly or almost utterly inert.

Mead had published before, in the year 1702, his mechanical account of poisons, which was so well received that an abstract of it was inserted in the Philosophical Transactions for the following year: it consists of a series of six essays, on the viper, spider, scolopendra, scorpion, and bee; on the tarantula; on the mad dog; on poisonous minerals and plants; on opium and laurel water; on venomous exhalations from the earth; and on poisonous airs and waters. In the first of these, he shews that the ancients were fully aware of the harmless nature of the poison of the most venomous reptile unless when mingled with the blood; of which he adduces an instance from Lucan's *Pharsalia*, where Cato is introduced, when marching the remains of Pompey's army through Africa, wisely telling the soldiers, almost choked with

thirst, yet afraid to drink of a spring to which they came, because full of serpents :

" *Noxia serpentum est, admisto sanguine, pestis ;*

" *Morsu virus habet, et fatum dente minatur :*

" *Pecula morte carent.*"

Luc. Phars. Lib. ix. vers. 614.

Speaking, in his fifth essay, of the poisonous effects of laurel water, (water distilled from the leaves of the *Prunus Lauro-Cerasus*, or cherry laurel,) which are now known to result from the Prussic acid which gives it its peculiar flavour, he points out the efficacy of ammonia in counteracting them, detailing an experiment upon a small dog, to which half an ounce of this water had been exhibited with the usual results, but, when he seemed on the point of expiring, a phial of good spirit of sal ammoniac was held to his nostrils, and a small quantity forced down his throat—the effect of which was, his gradually recovering the use of his limbs, and, in about two hours, running about with tolerable strength, and ultimately recovering completely.*

In 1703 Mead presented an analysis of Bono-mo's letter to Redi, (on the subject of the cutaneous worms that generate the itch,) to the Royal Society, in whose Transactions it was inserted, and the doctor admitted a fellow of that learned body.

* More recently chlorine has been recommended as an infallible antidote to this formidable poison : but such is the rapidity with which Prussic acid destroys the functions of life, that in but few instances of its administration is there sufficient time left for attempts to counteract its deleterious effects.

Mead had taken his degree as doctor of physic, at the University of Padua, on the 4th of December 1707; was created doctor of medicine by diploma, at Oxford; and the high reputation he enjoyed will be best estimated by the deference paid to him by foreigners of eminence, who could have no motive for flattering him.—Mead was a strong advocate for the use of purgatives in lessening, if not preventing, the secondary fever, which so often proved fatal in the confluent small pox; and communicated his opinions upon the subject to Doctors Radcliffe and Freind; the latter of whom adopted them, and published Mead's letter on the subject, containing a number of cases illustrative of the efficacy of the practice, in his commentary on the first and third books of the Epidemics of Hippocrates.* Being applied to by order of the Lords of the Regency, at the time of the plague proving so fatal at Marseilles in 1719, to inquire into the best means of preventing its introduction into England, he published in the following year his treatise on the plague,† which was bought up with such avidity that no less than seven editions were printed in one year. But, to enumerate and point out the value of all the numerous publications with which this excellent man enlightened and gratified the world during his life, would in itself demand a volume, and we have already too far transgressed the limits

* Freind, *Opera Omnia medica*. Editio altera, Londinensi, multo correctior, 4to. Parisiis, 1735. P. 67.

† Mead's *Medical Works*, p. 172.

which ought to be assigned to individual writers. It must therefore be sufficient to observe that this worthy man, broken down by a gradual decay of nature, closed his useful labours on the 16th of February, 1754, at the age of sixty-one years.

In a treatise on midwifery,* published in 1705 by Pierre Amand, a successful practitioner of the obstetric art at Paris, (who was born at Riez, in Provence, about the year 1650,) we meet with several cases of extra-uterine impregnation, and the description of a net contrived by the author, and accompanied by a representation, for extracting the heads of fœtuses, when left behind, after separation from the body: but this contrivance, although ingenious, is now wholly superseded by the crotchet.

About this time, Anthony Boccacini, a surgeon, practising at Comachio, a town in the duchy of Ferrara, revived the practice of Magnatus, which had fallen into disuse, and prohibited the application of all greasy or oily substances to ulcers or wounds, together with the use of tents and injections in the cure of abscesses,—which latter retarded the cure, not only by preventing the union of the parts, but also by their irritation, which frequently occasioned the lips of the wound to become callous. Boccacini published many works in defence and explanation of Magnatus' doctrines.

Precocity of talent, as indicative of a morbid ir-

* *Nouvelles observations sur la pratique des Accouchemens.* Paris, 1705.

ratibility of the sensorium, terminating but too frequently either in a premature death, or in a state bordering upon fatuity, worse even than the actual termination of existence, is rarely coveted by parents, and as rarely followed by that display of solid talent and durable excellence, which the early dawn of infant intellect appeared to promise. The organs of the understanding seem to require a certain maturity of developement to fit them for the more exalted operations of the soul, as the clay of the potter must have attained a proper degree of consistency, to enable it to receive and to retain the form which it is destined to attain upon the wheel. The exercise of the brain, like the exercise of every other organ of the human frame, is attended with, if not indeed productive of an increased determination of blood to the vessels of the part, which, when preternaturally increased by inordinate excitement during the tender period of infancy, too frequently induces inflammation, terminating in that dropsical effusion too well and too fatally known by the appellation of hydrocephalus, while a similar, but still more inordinate exercise of the thinking faculty in the adult, not unfrequently terminates in incurable insanity.

But as there is no rule without its exception, so do we find cases in which this premature developement, even when accompanied by the premature exercise of the reasoning faculties, has not been followed by any of those calamitous results which experience teaches us to apprehend, and the

which ought to be assigned
 It must therefore be sufficient
 worthy man, broken down
 nature, closed his useful
 February, 1754, at the

In a treatise on which adorns the page
 by Pierre Amand, lustre over the age in
 obstetric art at Paris the illustrious Haller, son
 Provence, about 1709, in Switzerland, where he
 several cases of death of October, 1709. The ac-
 description of the early display of the pow-
 accompanier's mind partake more of the cha-
 the head's vivacity, than of the sober tenacity of
 ration for which would appear utterly incredible, were it
 though the high and unquestionable authority upon
 the credit of rest. While yet an infant, under the

At three years, he was accustomed, as we are
 practice, to commit to writing, with a view to im-
 press them more strongly upon his memory, al-
 though few words which he chanced to hear in the
 course of the day: and he even composed, it is
 said, a variety of rules in grammar, arithmetic,
 and other sciences, for his own use; an undertak-
 ing hardly credible, even at an age much far-
 ther advanced. Before he had passed the age of
 five, he had not only prepared for his own use
 lexicons of the Greek and Hebrew, with a gram-
 mar of the Chaldaic, but even compiled a biogra-
 phical and historical dictionary, containing above
 two thousand lives of distinguished personages,
 from the works of Bayle and Moreri. Even in
 infancy he exhibited that talent for satire, which,

in after life, unhappily created for him so many enemies. When only ten years old, he wrote a satire in latin verse against his tutor, a harsh and ridiculous pedant. His father dying while he was yet only thirteen years old, and he being thus left to his free choice in the selection of a profession, he chose the department of Medicine instead of the Church, for which he had been designed by his father. Being sent to school for a short time to complete his preliminary education, he translated a theme, which he was desired to write in Latin, into Greek. He was removed from hence in 1723, to Bienne, where he studied philosophy under a physician of eminence, and learned the system of Descartes.* Here the romantic beauties of the situation awakened in his breast feelings

* Descartes professed a belief in Materialism, and, by way of illustrating his doctrines, constructed a wooden automaton, so ingeniously contrived as to appear all but animated. Descartes' object in the construction of this little machine was to demonstrate practically the absence of souls in beasts, which he regarded as mere machines impelled at pleasure by man. This figure, which represented a human female, gave rise to much malicious wit, at the expense of the philosopher, who was spoken of as having an illegitimate daughter named *Franchine*. Descartes having once embarked on board a Dutch vessel, accompanied by this little figure in a box, the captain, who understood navigation better than mechanics, and had as much curiosity and superstition as are generally found blended with the nautical character, hearing movements within the box for which his scanty meed of philosophy was unable to account, watched an opportunity to explore the hidden cause, and, terrified to find, on opening the wonderful box, that a human form of singular animation, yet apparently constructed only of wood, was its mysterious tenant, concluding it could be no other than the devil, concealed for no very benevolent purpose, in his vessel, he unceremoniously bundled poor Descartes' wooden daughter into the sea, and left the un-

of poetic enthusiasm, and produced a number of poems in German, the preludes of more finished compositions at a maturer age. About this period of his life he commenced a practice which he ever after continued, of reading with his pen in hand for the purpose of making extracts of whatever he met that was remarkable, and recording the impressions made at the time upon his own mind by the work which engaged his attention. It was at this period also that he finally determined upon adopting the medical profession: and, having come to this determination, he removed to Tubingen, where he studied anatomy, under Duvernoi and Camerarius, with great ardour, and acquired a taste for a better system of philosophy than the Cartesian. Moreover, being disgusted by a drunken debauch into which he had been led by his companions, he renounced wine for ever, and adopted a greater gravity of demeanour. In 1725, the reputation of the illustrious Boerhaave led him to Leyden, where, besides hearing the lectures of that distinguished master, he dissected with Albinus, and cultivated the acquaintance of Ruysch. Returning to Tubingen, he took as the subject of the inaugural thesis for his degree "*De ductu salivari Coschvitziano*," a subject which he afterwards resumed at Leyden in 1727. After visiting England, where he experienced much attention, he proceeded to Paris, where he dissected under Le

fortunate philosopher the consolation of unavailing regret for the destruction of that which had cost him years of contrivance.

Dran; but in consequence of a malicious information laid against him for having subjects in his room for dissection, he was obliged to make a precipitate retreat from that capital, whence he removed to Basil. Here, in addition to studying mathematics under Bernouilli, he acquired a taste for botany, which he had hitherto regarded with dislike. In this he was inspired, as he tells us himself, by the genius of the place which the Bauhins had consecrated by their presence, and which boasted of being the residence of Stahelin. Such was the ardour and enthusiasm of his disposition, and such the eagerness with which he embarked in this new pursuit, that he already, while a mere tyro in the science, and hardly able to distinguish plants of the most frequent occurrence, projected the execution of his great work on Swiss Botany, a work which he did not complete for many years after. He also made a number of botanical excursions among the Alps of the Valais, Savoy, and Berne, between this period and the year 1736, the fruits of which he gave to the world in subsequent publications. The magnificence of the scenery into which these excursions led him, revived his poetic ardour, and occasioned the composition of his celebrated "Poem on the Alps," followed by a number of minor productions, of such intrinsic and pre-eminent merit as to acquire for him the reputation of having been the first to give harmony, richness, and sublimity to the poetry of Germany. His poem on the Alps was composed at the early age of twenty-one; and, with his other poetic productions, went

through twenty-two successive editions in the original, besides numerous translations into other languages.

Having returned to Berne about 1730, Haller commenced publicly lecturing on anatomy; but, owing to the unavoidable impression produced by his former satires, although now destroyed, his success was far from being proportionate to his merits; and this, in addition to the constitutional irritability of his temper, prevented his adding much to the number of his friends. Having, however, acquired some celebrity abroad by the publication of various detached papers on anatomy and botany, he received an invitation in the year 1736, from George II, King of England, to undertake the professorship of Anatomy, Botany, and Surgery, in the recently founded University of Gottingen; an offer which, notwithstanding the unavoidable pang of separation from his native country and the connections of his wife, which its acceptance occasioned, he did not deem it prudent to reject. His arrival at Gottingen was farther embittered by the death of his wife, (to whom he had been most tenderly attached,) in consequence of an injury she received from the overturning of their carriage during the journey. To divert his mind from a fruitless indulgence in grief, he entered with ardour on the duties of his office, encouraging the more industrious of his pupils to devote themselves exclusively, with his assistance, to the investigation of some particular object of the animal œconomy, and to accompany their researches by careful experiments: a course of pro-

cedure of which he himself set the example, being earnestly bent on effecting that great reform in physiology, which his subsequent writings so triumphantly accomplished. Experiment, he was fully convinced, was alone capable of dispelling the accumulated errors of preceding centuries, and purging the science of physiology from the innumerable absurdities which obscured and disgraced it. While thus engaged in the improvement of medical knowledge, he secured the friendship of Baron de Munchhausen, the Hanoverian Prime Minister, who cordially seconded, and even anticipated his schemes for the benefit of the university; obtaining for it the establishment of a botanic garden, anatomical theatre, school for surgery and midwifery, lying-in-hospital, &c., &c. In 1738, soon after the death of his venerable preceptor Boerhaave, he undertook to publish his "*Prælectiones*," from a MS. copy of his own, collated with others; and in the same year he made an expedition into the Hercynian forest, of which he afterwards gave an account; as well as of a journey which he made in the following year into Switzerland.* In 1739 he commenced the publication of his commentaries on Boerhaave's lectures,† in seven volumes 8vo. the last of which appeared about the year 1744. The merit of this truly valuable work is too firmly established to need eulogy here. In 1742 was published the first edition of

* *Iter Helveticum, Anni 1739.*

† *Commentarii ad Hermannii Boerhaave prælectiones Academicas, &c. 7 vols. 8vo.—1739—1744.*

his great work on the Botany of Switzerland,* the plan of which he had projected many years before it made its appearance. In 1743 he commenced the publication of a series of Anatomical Plates,† amounting in all to thirty-six. These related chiefly to the blood vessels *in situ*, and were among the most valuable auxiliaries to the study of this branch of anatomical knowledge. The first edition of his excellent Manual of Physiology‡ appeared in 1747, and was eagerly sought after, passing rapidly through many editions, and translations. In this work he gave the outline of a system which he afterwards developed more fully in a larger publication. In 1749, he collected a number of his botanical papers,§ and published them in an 8vo. volume.

But to enumerate the whole of his numerous and valuable contributions would unavoidably transgress all reasonable limits, and it becomes impossible to do more than slightly notice a few of the more important:—such as his edition of Boerhaave's "*Methodus Studii Medici*," a work of vast labour and research, to which he made such copious additions, that by far the greater part was his own, and it may be regarded as the precursor of his celebrated and useful "*Bibliothecæ*."—After

* *Enumeratio methodica Stirpium Helvetiæ indigenarum*. Fol. 1742.

† *Iconum anatomicarum, quibus præcipuæ partes corporis humani delineatæ continentur*. Folio. 1743.

‡ *Prima Linæ Physiologiæ, in usum Prælectionum Academicarum*. 8vo. 1747.

§ *Opuscula Botanica*. 8vo. 1749.

having filled the duties of a professor for seventeen years, at Göttingen, with equal honour to himself and advantage to the university, he returned in 1753 to Berne, where he was most favourably received, and rose rapidly to the highest honours of the state; but with his political career we have nothing to do. He had a few years before, while residing at Gottingen, been raised, by the Emperor Francis, and at the request of his royal patron George II, to the rank of nobility* by the title of Baron Von Haller. Two years after his return to his native town, he found time, amid the multitude of his public duties, to publish a valuable work on morbid anatomy.† — Several other works of great merit graced the succeeding years: and he soon after commenced the great work on Physiology,‡ of which his "First Lines" may be regarded as the Prodomus: this work, upon which his reputation chiefly rests, occupies eight quarto volumes, and exhibits such a vast collection of well authenticated facts, of which his own discoveries and observations form the most important as well as most conspicuous part, together with such accuracy of description, and such truly scientific and perspicuous reasoning, as have been seldom, if ever brought together upon any one subject. In 1768, he published a new and cor-

* A. D. 1749.

† *Opuscula Pathologica, quibus sectiones cadaverum morbosorum potissimum continentur*, 8vo, 1755.

‡ *Elementa Physiologie Corporis Humani* 8 vols. 4to. Lausanne, 1757—1766.

rected edition of his great work on the Botany of Switzerland,* already spoken of, in which he introduced an arrangement peculiar to himself, and manifested a strong disinclination to adopt the improvements recently made by the immortal Linneus. This work, one of the most copious published at that time, was singularly correct and minute in the specific distinctions, and æconomical and medicinal properties of plants. Besides these works, any one of which was sufficient to immortalize his name, he gave to the world his *Bibliothecæ*; of which he published no less than four,† containing a chronological list of every work of every age, country, and language, on the subject to which each *Bibliotheca* was devoted. These works display an astonishing extent of erudition, embracing not only all the known pertinent publications of every country, but multitudes which were probably unknown, even by name, to most of the students belonging to the countries which produced them. They afford a most valuable and comprehensive system of medical biography, and yield important aid to the medical historiographer.

Haller's merited celebrity procured him numerous testimonials of respect from every part of

* *Historia stirpium Helvetiæ indigenarum*, 3 vols. fol. cum tabulis æneis, 1768.

† *Bibliotheca Botanica*, 2 vols. 4to, 1771.—*Bibliotheca Chirurgica*, 2 vols. 4to, 1774.—*Bibliotheca Anatomica*, 2 vols. 4to, 1774.—*Bibliotheca Medicæ practicæ*, 4 vols. 4to, 1776—1788, the two last being posthumous, published from papers which he left behind, with additions, by Doctors Trubolet and Brandis.

Europe, and among the rest he was requested by the King of England to accept the Chancellorship of the University of Göttingen. From earliest youth he had been distinguished by a fervent but rational piety, which sustained him under every affliction, and proved his best consolation in the hour of death. This took place in his seventieth year, in consequence of a disease of the bladder, the pain of which could only be alleviated by the free exhibition of opiates. Such, however, was the tranquillity with which he viewed the slow but certain approaches of dissolution, that he marked himself the progressive decay of his organs, and on the 12th of December, 1777, with his finger on his wrist, calmly observed to his physician, Mr. Roselet, "My friend, I am dying—the artery no longer beats," and expired immediately without a struggle.

It had long been known that the chief, if not the whole of the danger which attended the operation of extracting the venom from poisoned wounds, by means of suction with the lips, arose from the possibility of some wound, or other abrasion of the skin lining the lips and fauces, admitting of the absorption of the poisonous fluid into the system, and occasioning its admixture with the vital fluid. To afford relief, therefore, to patients labouring under such distressing circumstances, without in any manner compromising the safety of the operator, had long been a medical problem of difficult solution. In 1707, however, Dominic Anel, physician to the Court of Savoy, published

a treatise* expressly upon the solution of this problem: among the instruments employed by Anel, for the accomplishment of his benevolent design, was a syphon of fearful size; and altogether his whole apparatus appears to have been so cumbersome and so far from efficient, that it seems never to have come into general use. He also published in 1714 an improvement upon the plan of treatment of aneurism which had been proposed by Guillemau, a pupil of Ambrose Paré, who laid the tumour bare, passed a ligature under the artery above the seat of disease, and then, having emptied the sac, closed the wound. Upon this method Anel improved by making a longitudinal incision over the aneurism, without wounding it, after which he made a single ligature upon the vessel close above the tumour, and left the rest to nature. A tourniquet was in all these cases applied to the limb so as to secure a free command of the artery. Under this treatment the tumour gradually disappeared by absorption. This plan experienced considerable opposition on the part of the surgeons, most of whom objected to it, although not unfrequently followed by Heister and others. Heister, indeed,† expresses his doubt of its success in wounds of the large crural artery, so as to enable the limb to be saved: its perfect efficacy and safety, nevertheless have been fully demonstrated by more modern practitioners. Anel's

* *L'art de sucer les plaies, sans se servir de la bouche de l'homme*. 8vo. Turin, 1707.

† *Syst. Chirur.* par. ii. sec. 1. cap. 13. §. 22.

principal work, however, which yet retains its reputation, was that which explained his mode of treatment of fistula lachrymalis,* in which he describes a fine and flexible tube by means whereof he was able to open the lachrymal duct, wash it out with a syringe, and finally heal the passage. This excited, if possible, a warmer controversy than his plan of treating aneurisms; it met, however, the approbation of the College of Surgeons at Paris, and has formed the basis of all the modern improvements in the method of treating that complaint.

In 1715, three books of Medical Observations, by Jodocus Lommius,† a physician of Brussels, with a dedication by the author to the senators of that republic, were printed at Amsterdam. The work contains distinct accounts of almost every complaint to which the frame is subject, commencing with the *Ἐπιήρεια* of the Greeks, (the symptoms of which he details minutely, but concisely,) and book ending in the first book with Syphilis: the first being devoted to such complaints as affect the whole system; the second book, commencing with head-ache, comprising those which affect particular organs; while a third is reserved for a consideration of the terminations and *sequelæ* of diseases, which he discriminates into various classes, according to their violence, duration, danger, and other particulars. A translation of these Observations, with a translation of Lommius'

* Nouvelle méthode de guérir les fistules lachrymales. 4to. Turin, 1713.

† Observationum Medicinalium Libri tres, 12mo. Amstelodami, 1715.

"Treatise on Continual Fevers" prefixed, was published in London, in 1732, by Dr. Thomas Dale, with a dedication to the author of the *Pharmacologia*, noticed in the last chapter. Both works contain some useful observations; and the style of Lomnius' original Latin is far from inelegant.

Laurence Heister, an eminent physician, surgeon and anatomist, (who was born at Frankfort on the Maine in 1683,) while professor of anatomy and surgery at Altdorf, in the little canton of Uri, published his "*Institutions of Surgery*" in German, from which it was soon translated into Latin, and most of the modern languages of Europe; and added much to the celebrity of its author. He also published some works on the theory and practice of Medicine, founded on the mechanical doctrines of the Boerhaavian school, and he likewise wrote a valuable practical work in quarto, consisting of medical, surgical, and anatomical observations, still held in high esteem.

In 1719 John Allen a physician practising in London, published the first edition in Latin of his "*Synopsis universæ medicæ practicæ*," 8vo. dedicated to the president and fellows of the college of physicians, which was received with such avidity, both abroad and at home, that it went rapidly through a multitude of editions, and was enlarged by its author to nearly double its original bulk. It contains short accounts of all the affections of the human frame, collected from the most distinguished writers, antient and modern. He speaks of this work himself with the greatest modesty, and desires his reader not to content him-

self with the extracts he has given, "*sed potius
" authores ipsos ubicunque consulat: nam, in
" transferendis eorum sententiis, verisimile est me
" frequenter errasse, aut saltem sensum obscure
" aut imperfecte tradi sisse. Dulcius ex ipso fonte
" bibuntur aquæ.*" After it had been translated
into French, he gave an English translation in 2
vols. 8vo. in 1734: of which a fourth edition, also
in two volumes, was published in London in 1761.

In the same year in which Allen published the
first edition of his Synopsis, William Oliver, a
physician practising at Bath, published a small
work* on the medicinal properties of the waters
of that place, to which he has subjoined a most
surprising account† of a labourer of the name
of Samuel Chilton, who resided at the village of
Timsbury, near Radstock, about twenty-five years
of age, and a robust habit of body, but not fat,
who, without any known cause, was seized, on the
13th of May 1694, with a most profound sleep,
which lasted for a month without interruption, and
out of which nothing could rouse him, although it
appears he wakened at times sufficiently to eat the
provision which his mother providently placed
within his reach. His next sleep commenced
about the 9th of April 1696, and lasted for seven-
teen weeks, during which he was visited by Mr.
Gibbs, a very able apothecary of Bath, who bled,
blistered, cupped, scarified, and tried every other

* A dissertation on the Bath waters. 12mo. Lond. 1719.

† A relation of an extraordinary sleepy parson at Timsbury
near Bath. 12mo. Lond. 1719.

method of rousing him, in vain. After the first fortnight he never was observed to open his eyes. Provisions stood by him, as before, but he was never seen either to eat or to evacuate, though he evidently did both regularly, till the expiration of the first ten weeks, after which he was no longer able to eat, his jaws appearing clenched and his teeth set so close that they were unable to open them for the purpose of introducing food or medicine. At last they succeeded in getting a quill into an opening in his teeth, through which they poured some Tent wine occasionally down his throat; and this was the only sustenance he took for six weeks and four days, during which he had but one evacuation of the bladder, and none by stool. At length, on the 7th of August, he awoke, dressed as usual, and walked about, unconscious of the length of time which had elapsed during his repose. On the 17th of August in the following year he fell asleep again for a third time, and continued to sleep without interruption till the 19th of November, when he awoke, asked for food, but, before it could be brought, fell asleep again, and continued in this state, but not quite so profoundly as before, till the end of January; making a total period of one hundred and seventy-seven days, or six months one week and two days, consumed in sleep. During the first part of this last sleep he was visited by Dr. Oliver, the writer of the narrative, Mr. Woolmer, an experienced apothecary, and a number of others whom the novelty of the circumstance attracted to the place. The Doctor states that he found him asleep with a cup of beer, and a piece of

bread and cheese within his reach : his heart and pulse beat with regularity, and his breathing was free ; he was in a gentle perspiration, but the doctor thought his pulse, though regular, stronger than was perfectly natural. Doctor Oliver tried every expedient to rouse him, but in vain. At length, resolved to discover the cheat, if any really existed, he held a bottle of the most pungent spirit of sal ammoniac to his nose, and even threw some of it up into the nostrils, and forced a quantity of white hellibore powder up the same nostril, but all to no purpose. Some gentlemen who visited him in consequence of Doctor Oliver's report, found him in the same condition, only severely blistered from the roughness of the experiments tried upon him, which his mother naturally objected to having repeated. But, about ten days after this, Mr. Woolmer visiting him, and finding his pulse high, took fourteen ounces of blood from his arm, and left him still undisturbed by all the preparations for this operation. Doctor Oliver himself saw him again in September, but removed to another house about a furlong from that in which he had seen him before, and to which he had been transferred without once awaking, although in carrying him down a narrow staircase his head was accidentally struck against a large stone with great severity. Doctor Oliver's account closes with this last sleep, which continued, as has been already said, with only a momentary intermission on the 19th of November, till the end of January or beginning of February—without informing us of the conclusion of the case, or whether,

between February 1698 and the date of the publication of the account, a period of twenty-one years, he had had any relapses of his sleepy paroxysms. Doctor Oliver, besides the reason he had already had for believing there was no cheat in this matter, as in Anne More's fasting, states, that his sleeping, so far from being a source of gain, was a positive loss to his mother, from the interruption of his earnings as a labourer, while no counterbalancing advantage was derived from visitors who had free admission to his bed side, nobody remaining with him by day in the house, to receive any contributions which might be made. Such are the leading facts of this singular case, upon which Doctor Oliver comments according to the prevailing theories of the day: but as one fact is of more value than a thousand conjectures, we may be spared adding to the prolixity of this account by introducing the reasoning subjoined to the original.

During the dreadful plague which depopulated the town and vicinity of Marseilles in the year 1729, Francis Chicoyneau, a native of Montpellier (where he was born in 1672 and took the degree of doctor in 1693,) having acquired considerable celebrity both as a medical teacher and practitioner, was appointed one of the medical commission sent to endeavour to arrest the progress of that dreadful pestilence, on the recommendation of M. Enirac, who was first physician to the Regent.

Chicoyneau's zeal, attention, and success upon this occasion, gave such satisfaction both to the inhabitants and the Regent, that, on his return to

Montpellier, he was rewarded with a pension. In the following year, in conjunction with M.M. Verney Deidier, his colleagues in the commission, he published his remarks on this pestilence,* in which he contends for its nature not being contagious; and states, in corroboration, that he and his colleagues, acting upon this conviction, entered the chambers of the sick without fear, and without suffering from infection, whence they were led to conclude that it was not contagious;—an opinion which appears to have been productive of much mischief to the inhabitants, by leading them to neglect the proper precautions, and thus contributing to the diffusion of the evil. Being afterwards ordered by the king to collect the opinions of different physicians on the subject of the plague and, in particular, all the facts and observations which had been made on that at Marseilles, he prepared and published a quarto volume† containing the result of his inquiries, drawn up with great candour, and highly valuable from the collection of facts which it contained. Chicoyneau succeeded his father-in-law, Chirac, on the death of the latter in 1731, as first physician to the King, and was also made counsellor of state, and honorary member of the

* Observations et réflexions touchant la nature, les événements, et le traitement de la peste de Marseilles, 12mo. 1721.

† Traité des causes, des accidens, et de la cure de la peste, avec un Recueil des observations, et un détail circonstancié des précautions qu'on a prises pour subvenir aux besoins des peuples affligés de cette maladie, ou pour la prévenir dans les lieux qui en sont menacés, 4to. Paris, 1744.

Academy of Sciences. He died in 1753, at the age of eighty years.

George Cheyne, a native of Scotland, where he was born in 1670, published, in 1723, the first edition of his *Essay on Gout*,* originally designed, as he himself informs us, both in the title and advertisement to the seventh edition, which followed within three years after the first, for the private use of a gentleman of the name of Tennison, and merely an abstract of a larger work which he had not leisure to complete. The theory of gout in this work is founded entirely upon that mechanical hypothesis which was the fashionable doctrine of the day; and he explains the reason of some persons being martyrs to this dreadful disorder, while others, with constitutions apparently similar in every respect, are exempt—upon the gratuitous supposition of a difference in the capacity of the vessels. He strongly advocates the use of the Bath waters, from which he had himself derived great benefit, both in this and other chronic disorders.—In 1724 he published his "*Essay on Health*," &c., dedicated to Sir Joseph Jekyl, Master of the Rolls, who had been a patient of his. In the preface he gives a kind of *catalogue raisonné* of his former works, which he criticises with equal freedom and severity; and is particularly severe upon himself in all cases in which he had treated others with levity or disrespect. In this work, (which appears to have suggested a

* An Essay of the true nature and due method of treating gout. The seventh edition, 8vo. Lond. 1725.

similar one by an eminent Scotch baronet in our own days,) he points out the necessity of the strictest attention both to diet and regimen for the preservation or restoration of health. Of the efficacy of the plan which he recommended, his own case furnished a most striking and satisfactory illustration; for, having been naturally a voluptuary, and indulging his propensity to luxurious living, his corpulence had increased to such a degree that, by the time he had reached the meridian of life, he found himself so unwieldy and lethargic, and embarrassed by such difficulty of breathing, that he became alarmed, and determined upon adopting a total change of life, confining himself to a milk and vegetable diet, with a total abstinence from fermented liquors; by a rigid adherence to which plan, he soon found himself relieved from the most distressing symptoms under which he laboured, and was so strongly impressed with the beneficial effects of the method he pursued, that he was induced to make it public for the advantage of others similarly circumstanced.—In 1724 appeared a fourth edition of his work on Fevers,* with an Essay on the Improvements of the Theory of Medicine—the whole founded, like his Essay on Gout, upon the mechanical doctrines of the day. But the work by which, perhaps, his name is best known, is his “English Malady,”† which first appeared in 1733,

* A new theory of acute and slow continued fevers, 8vo. The fourth edition. Lond. 1724.

† The English malady, or treatise of nervous diseases of all kinds, 8vo. The fourth edition. Lond. 1734.

and acquired so much popularity as to reach to a fourth edition in the following year : subjoined to it are the cases of Dr. Cranstoun and the author himself, the latter at a considerable length, occupying no less than forty-six pages. Both these cases are eminently instructive, the latter especially, as it strikingly illustrates the efficacy of the plan, by which not only the effects of early indulgence, but also of hereditary predisposition were fully counteracted, and holds out a valuable lesson and most encouraging hopes to those who have suffered from intemperance. Yet, with all the practical evidence in favour of his own plan, Cheyne, with all that inconsistency which forms so much of our nature, relapsed into his old habits ; but had yet resolution enough, on finding his old complaints returning, to resume his system, and thus prolonged his life to seventy-two years, when he died, at Bath, in 1742.

Amongst the most distinguished and favourite pupils of the illustrious Boerhaave, we find the name of Gerard Van Swieten, the descendant of an ancient and respectable family in the Low Countries, who, after a preliminary course of philosophy at Louvain, where he preeminently distinguished himself by his industry and talents, removed to Leyden, where he studied Medicine under the great Boerhaave, and after an application of seven years took his degree of Doctor of Medicine, in 1725. Having previously attained a distinguished rank among men of science, he was almost immediately appointed to a medical professorship, which he held with distinguished re-

putation and ability for many years: his lectures, no less than those of his colleague and instructor Boerhaave, attracting an immense concourse of pupils from every part of the world. His eminent success and growing popularity at length roused the envy and excited the malice of those who felt mortified by the consciousness of their own comparative inferiority, and wished for the removal of the greater luminary in the hope of adding an imaginary brilliancy to their own borrowed light. These persons using zeal for religion, as is but too often the case, to mask their interested and dishonourable views, and forgetting, or pretending to forget, that the tenets of religious faith had no connection with the doctrines of medicine, or that the aphorisms of Hippocrates flowed with equal purity from the lips of a Mahometan, a papist, or a protestant,—availed themselves of an obsolete and almost forgotten provision of the laws of Holland, prohibiting those who professed a faith differing from the established religion of the state from holding any public appointment. Van Swieten was, in consequence, obliged to resign a professorship, which he had held with equal honour to himself and advantage to the university; and employed his leisure in writing commentaries on Boerhaave's Aphorisms,* the first volume of which had appeared, and the second was nearly ready, when his reputation procured him an invitation from the court of Vienna. This he accepted, and re-

* *Commentaria in Hermann Boerhaavi Aphorismos de cognoscendis, et curandis morbis*, 5 vols. 4to.

moved thither in 1743, after stipulating for permission to follow his usual course of life. His unwearied zeal, rigid love of order, perfect knowledge of ancient and modern languages, general erudition, intimate acquaintance with Medicine and all its collateral sciences, added to his love of justice and decorum, peculiarly fitted him for taking the lead in the medical school of Vienna. There his first labour was the reformation of the course of study; for which purpose he accepted a professor's chair, and displayed great firmness and zeal in eradicating abuses, and laying the foundation of that flourishing school for which Vienna has been since distinguished. Through his influence with the Empress, the college was rebuilt, with the addition of a chemical laboratory, schools of anatomy and surgery, a clinical establishment at one of the hospitals, and the foundation of a botanic garden. Being appointed librarian to the imperial collection, he introduced a liberal and highly important improvement, in permitting visitors to make notes and extracts from its contents. His hostility to innovation made him an opponent to the practice of inoculation. He now published a work on the Diseases of Armies,* which possesses considerable merit. But it is his Commentaries on the Aphorisms of Boerhaave which will hand his name down to posterity: they form a vast magazine of medical practice and pathological research, the result of his own ex-

* Description abrégée des maladies qui règnent communément dans les armées, avec la méthode de les traiter. 8vo. Vienna, 1759.

tensive reading and experience, which, amid all the fluctuations of medical science, still and ever must maintain its value from its vast accumulation of medical facts, well selected and judiciously arranged, as well as for the valuable summary it exhibits of the knowledge of the best writers, both of the ancients and of his own time. Among other observations, he remarks, that people, who, by a vicissitude of fortune, have been reduced from affluence to the necessity of earning their bread by bodily labour, and exchanging a luxurious table and indolent life for spare diet and active exertion, have become permanently cured of gout; and gives, in illustration of this, the case of a rich priest, who had enjoyed a fat living and long been a martyr to gout, but, chancing to be carried into slavery by a Barbary corsair, and kept for two years to hard labour and spare diet in the galleys, lost his gout and his obesity together, and after having been ransomed, enjoyed, by perseverance in his abstemious habits, health, and exemption from gout for many years. This work has been translated into English and most European languages. Van Swieten, besides being raised to the dignity of a baron of the empire, was elected a member of almost every learned society in Europe. At length, after enjoying unbroken health for a long succession of years, his constitution began to fail, and, after a progressive decline for three years, he was attacked with gangrene in one of his toes, which proved fatal in the 73rd year of his age, at Schoenbrunn, in the year 1772; after he had during his useful life

essentially contributed to benefit medical science, generally, throughout Germany.

In the year 1725, John Freind, a physician of great eminence and extensive erudition, whose name has already been more than once noticed in these pages, published the first volume of his *History of Physic*,* addressed to the celebrated Dr. Mead. A second volume of the work appeared in the following year. In the first of these volumes he treats of those Greek writers who flourished since the days of Galen, fixing with precision the æra in which Oribasius, Ætius, Alexander and Paulus flourished, which former historians, even those of the best repute, had left confused and unsatisfactory. He has also preserved many valuable fragments of authors who wrote before the days of Galen; pointed out various improvements in surgery; and allotted to the ancients many facts and discoveries falsely claimed by the moderns, such as the knowledge of the salivary glands, the use of the seton, method of making issues by means of caustic, and tapping in dropsy. He also dwells upon those uncommon complaints which have been noticed by the ancients, as the Guinea worm, and lycanthropia. He commends methods of cure adopted by the ancients, which had either fallen into disuse, or were rarely employed—as scarification, and arteriotomy; speaks of the use of purgatives in fevers, &c.—of bleeding in exanthemata and syncope, and of the conjoint

* The history of physic, from the time of Galen to the beginning of the sixteenth century, 2 vols. 8vo. Lond. 1725-6.

use of purging and bleeding in palpitation of the heart : and makes many useful and curious observations on aneurism, inguinal and crural hernia, the discovery of the circulation, and other matters equally interesting and important. In the second volume he shows the origin and progress of literature among the Arabians, and the zeal and munificence of the Caliphs in promoting improvement ; determines the æras of the Arabian physicians, both those whose works have reached us, and those whose names had not been heard of before ; and shows the portion of improvement which Medicine owes to each ; treats of complaints either known to the Arabian writers alone, or first mentioned by them, as, for example, the small pox, which was utterly unknown to the Greek writers ; points out the improvements made by them in practice, in the substitution of milder purgatives for those in use before ; and traces the origin of chemistry to them, and the introduction of preparations yet retained in our pharmacopœas. Quitting the Arabs, he descends to the later ages, to the revival of Medicine in Europe, and to the schools of Salerno, Naples, Montpellier, and Bologna, founded for its encouragement. The introduction of chemistry he ascribes chiefly to our countryman the illustrious Bacon, whose various discoveries likewise in optics, catoptrics, dioptrics, mathematics, astronomy, and natural philosophy, he briefly notices. He gives an account of the pestilence which raged so extensively in the year 1348 ; and describes the novel disorders that appeared in the following century, as the sweating sickness, which made its first

appearance in 1493; the scurvy, which attacked the Portuguese circumnavigators; and syphilis, which was the price paid by Europe for the discovery of America. Such are the leading features of this work, which is at once curious and instructive. It was translated into Latin by Doctor John Wigan, and forms part of the edition of his works published at Paris in 1735,* from which a considerable portion of the more valuable materials of the present history, during those periods which are common to both, has been derived. The chief defect in Freind's work is an inattention to the regular observance of chronological order, which is often a source of perplexity.

Freind was born in 1675 at Croughton a town of Northampton, (of which his father was rector,) and received his education at Christ Church, Oxford, at the time that the celebrated Doctor Aldrich was dean; and, having taken his master's degree on the 12th of April 1701, and that of bachelor of medicine on the 1st of June 1703, he was admitted to his doctor's degree by diploma, on the 12th of July 1707. As early as 1703 he gave proofs of the precocity of his genius, in the publication of his *Emmenologia*, founded in a great degree upon the mechanical doctrines of the day. In the following year he was appointed lecturer in chemistry in the university—and in 1705, he accompanied the Earl of Peterborough, as physician to the forces, into Spain.

* *Johannis Freind MD., Serenissimæ Regiæ Carolinæ Archiatri, Opera Omnia Medica. Editio altera, Londinæ multo correctior et accuratior, 4to. Parisius, 1735.*

where he continued with much reputation for two years, and, on his return, drew up a narrative of the transactions there. In 1709 he published his *Lectures on Chemistry*, in which he accounted for almost all the phenomena of the science upon the principles of the Newtonian philosophy. In 1712 he was chosen a fellow of the Royal Society; an honour which he had richly earned by his services to science. In the same year he accompanied the Duke of Ormond to Flanders, whence he returned within a year, bringing back copious additions to his stores of knowledge. In 1716 he published the first and third books of the *Epidemics of Hippocrates*, accompanied by nine commentaries on fevers. In 1719 he published a letter to Doctor Mead on the use of purgatives in the secondary fever of confluent small pox, wherein he treats the subject with his usual skill and perspicuity. In 1720 he delivered the *Harveyan Oration*—and in the year 1723, while a prisoner in the Tower, wrote a letter to Doctor Mead on the subject of certain kinds of small pox, in the postscript to which he says—“*Ego scribo hoc, cum permissione atque etiam indulgentia Præfecti, in præsentia Warderi: qui cum in scribendo me non multum adjuvet, facit quod tibi gratum fore reor, ne longior sim.*” It was during this imprisonment that he commenced the *History of Medicine*, already spoken of. He died at the age of fifty-two years in 1728, and was interred at Hitcham in Buckinghamshire.

Dr. James Douglas, one the most distinguished teachers of anatomy in his time, and the im-

mediate predecessor of the celebrated Dr. John Hunter, published in 1726 "*A history of the lateral operation for the stone*," in octavo, of which he gave a second edition in 1733, accompanied by an appendix, exhibiting a comparative view of the method of operating employed by different lithotomists, and more especially that recommended by Cheselden. His brother John also, who was surgeon to the Westminster infirmary, and author of several controversial works, wrote an account of the high operation for the stone, which he practiced.

In the same year Dr. Edward Barry, a native of Dublin, who had studied and taken his doctor's degree at Leyden in 1719, published a treatise on consumption* of the lungs, in the preface to which he takes a concise review of the progress of Medicine from the time of Hippocrates to that of Harvey, and demonstrates the small improvement that was really made in all that time. He gives particular credit to Aretæus, for having first digested into a more lucid order the confused materials furnished by Hippocrates, and points out the service performed by Galen in collecting the scattered diagnostics and prognostics dispersed through the writings of former physicians; but censures him at the same time for his intro-

* A treatise on consumption of the lungs, with a previous account of nutrition, and of the structure and use of the lungs. 8vo. Dublin, 1726. A reprint appeared in London the following year, and in 1759 he published a fourth edition greatly enlarged and improved, under the title of "*A treatise on the three digestions and discharges of the human body, and the uses of their principal organs*."

ducing the peripatetic philosophy into the theory of disease, and thus not only retarding the improvement of physic, but involving it in fictitious and erroneous hypotheses. From the time of Galen to that of Paracelsus, writers did little more than transcribe Galen and Aristotle, taking hardly the least notice of Hippocrates till Hollerius and Dinetus revived his doctrines in France. Paracelsus, however, violently overturned the Galenic doctrines, and substituted the chemical in their room, explaining, or endeavouring to explain, all the operations of the animal frame, upon the theory of fermentations. The discovery of the circulation produced a fresh revolution in Medical science, and introduced those mechanic, hydrostatic, and hydraulic principles which prevailed at the period when our author wrote.

About this time the use of cold water began to come into vogue, and a work in favour of this practice was published by Dr. Hancocke, under the title of "*Febrifugum Magnum*;" besides which in 1726 an anonymous pamphlet of nearly three hundred pages* appeared, recommending an extension of Dr. Hancocke's plan to other complaints, as, *phrenitis, melancholy, apoplexy, palsy, catarrh, &c. &c.* In phrenitis the author recommends confining the patient to cold water almost entirely for his drink, washing the head frequently

* *Febrifugum Magnum Morbifugum Magnum: or the grand febrifuge improved.* Being an essay to make it probable that common water is good for many distempers that are not mentioned in Dr. Hancocke's *Febrifugum Magnum*. 8vo. Lond. 1726.

with cold water, and using the cold bath freely. He recommends a trial of the diaphoretic properties of cold water; advising, for this purpose, that, after the use of the cold bath, the patient should be made to take a good draught of cold water, and be immediately put to bed and warmly covered up. The reason he assigns for giving cold water immediately on coming out of the cold bath, is "because we find all people after bathing, as soon as they put on their clothes, are inclined to a breathing sweat."^{*} He does not, like the more scientific Currie, lay down any precise rules for the use of his great febrifuge, which he appears to have employed in a perfectly empirical manner, without having any clear notions of the rationale of its operation, which would have made him more exact in his directions as to the fit time and manner of its exhibition. With respect to phrenitis, instead of regarding it simply as an inflammatory affection of the brain, he loses himself in a wilderness of theories, and cites the opinion of writers, and of Bellini among the rest, to shew that it is the result of heat, which, by rarifying the blood, makes it occupy more room in the vessels, and thus produce difficult and irregular circulation, especially in the minuter arteries of the brain. He therefore recommends cold water both externally and internally with a view to the reduction of this morbid heat, and the production of such a reaction of the system, as, by determining the action of the fluids from the centre to the surface, might excite a sa-

lutary diaphoresis; but he does not seem aware that diaphoresis is in itself a refrigerating process, which the exhibition of cold in any shape, after its commencement, is liable to urge on with a dangerous rapidity, and thus produce the most alarming and distressing symptoms. The internal use of cold water in ardent fevers had been recommended, among the ancients, by Hippocrates, Galen, and Celsus, and among the moderns by Cardan, Hoffman* and others. In the eighteenth century, about the same time when Smith and Hancocke wrote in favour of it in this country, recommending it almost as a universal remedy, the practice was even more general, and obtained a higher reputation in Spain and Italy, appearing, under the denomination of the "*Dietu Aquea*," to have superseded at one time all other diet as well as medicine. An account of this may be found in the Philosophical Transactions† communicated by Dr. Cyrillus, a professor at Naples; who, besides the internal use of cold water, speaks of the advantage of an external application of cold to the bodies of the sick, under the form of powdered ice or snow.‡ The Boerhaavian doctrine of *lento*r (sluggishness)

* Hoffmanni Opera, vol. 1. p. 479

† Vol. 36.

‡ Riverius says that washing the feet in water is beneficial in plury, especially if the patient be frequently dipped in cold water. He also tells us that a linen cloth slightly wrung out of cold water, and applied to the forehead, induces sleep—this practice however serviceable in cases of inebriety, and others in which there is great morbid heat, cannot be otherwise than injurious when indiscriminately adopted. Baglivi recommends cold bathing as a remedy for insanity: in which

in the blood being the cause of fever, and requiring, (as was imagined by those who regarded theory more than observation, and hypothesis more than facts,) the use of warm drinks and warm applications, prevailed, however, over the voice of nature, and the precepts of Hippocrates, of Hoffman, and Cyrillus,—and even the illustrious Cullen himself, whose sound judgment enabled him to detect and expose so many of the existing fallacies of his day,—even Cullen appears to have retained so much of the Boerhaavian feeling, as to have hesitated about the propriety of cold drink, or the admission of cold air in the burning stage of fevers. In fact the rationale of the action of cold in such cases was little understood; its application was too empirical, and too little guided by any scientific rules to ensure uniform success; and the unfortunate results which occasionally followed its injudicious application, concurred with pre-existing prejudices, which are not even at the present day wholly subdued, to prevent the general adoption of this salutary practice. Conducted, however, according to the excellent rules laid down by the inimitable Currie, the cold practice, whether by the internal use of cold drinks, or the external application of cold air, or cold water, in the form whether of affusion, immersion, or even simple ablution, will be found not only salutary but agreeable—not only free from the slightest danger, but attended with the most de-

he agrees with Van Helmont and others; and Sir John Floyer mentions, upon the authority of Doctor Tyson, its efficacy in the cure of nymphomania.

cided advantages; and even capable of being safely combined in the fever of the West Indies with the use of mercurials,* as the writer of the present work has experimentally and satisfactorily ascertained. The chief circumstances demanding attention are, to employ it early in the complaint, while the vigor of the constitution and the powers of reaction are yet unbroken; to use it at the moment when the febrile heat is greatest and the skin perfectly dry; to discontinue it the instant the pulse begins to sink, or the slightest particle of perspiration to moisten the surface; and not to employ it in conjunction with mercurials after the symptoms of constitutional affection by the mercury have appeared. Those who are desirous of fully understanding the principles upon which the practice of cold bathing, whether

* A striking instance of the utility of cold affusion as a means of reducing febrile heat, and enabling mercury to exert its specific action, occurred about the year 1817, at New Orleans, in the case of a young lady to whom mercury had been exhibited in vain to an enormous extent in a violent attack of yellow fever which threatened a fatal termination—the black vomit, and all the other indications of approaching death having appeared. The case being desperate, a trial of cold affusion was made, with the happiest results, although not under those circumstances in which prudence would have dictated it: a copious salivation came on during the administration of the cold affusion, and the patient gradually though slowly recovered; her system having been overcharged with mercury before the force of the febrile action was subdued. Had this practice been adopted at an earlier stage, and followed with equal boldness while the heat of the body continued steadily above the standard of health, and the skin remained parched and dry, there can be little doubt that an infinitely smaller proportion of mercury would have been sufficient, and the evils which resulted from overcharging the system with it, would have been wholly avoided.

in sickness or in health, should be conducted, cannot consult a surer guide than the admirable work of the elegant and philosophic Currie;* a work which, whether viewed with regard to the classical purity of its style, (which sheds a splendour all its own over a subject barren and uninteresting in its nature to the general reader), or with regard to the philosophic manner in which the question is examined, and the sound pathological principles upon which the practice is founded—may be pronounced, in the figurative language of Haller, an *opus vere aureum*, which no medical practitioner ought to be without, and which all heads of families will find it their interest to keep as a book of occasional reference. An opportunity of farther illustrating the good effects of cold water in fevers will again occur when we come to the history of the fatal epidemic which prevailed at Breslaw in Silesia in 1737, and of which an account has been preserved by J. G. de Haen who himself experienced its malignity.

We now arrive at a controversy which was maintained with considerable asperity between two practitioners of some celebrity at this period, on a subject which even at this moment can hardly be considered as finally settled, since much difference of opinion respecting it may yet be found, both among practitioners and the public generally. Early in the eighteenth century a treatise on

* Medical Reports on the effects of water cold and warm as a remedy in fever and other diseases, 2 vols. 8vo. Fourth edition, London, 1805. A later edition has been since published by the author's son.

diseases of the skin had been published by Doctor Samuel Turner, the twelfth chapter of which contained a long and laboured dissertation on those congenital marks impressed upon the human body, as was believed, by the force of maternal imagination acting, during the period of gestation, upon the unborn fœtus. In order to expose the fallacy of Turner's doctrine, and shew the popular notion respecting these moles and blemishes to be founded in error, and repugnant to reason, Doctor James Augustus Blondel anonymously published a work* in which he demonstrated the absurdity of the doctrine, and its untenableness upon anything like scientific principles. Notwithstanding Blondel's withholding his name, Turner discovered him to be the author, and, regarding the publication as a direct attack upon himself and the doctrine contained in his book, felt called upon to defend what he had advanced, which he accordingly did in an appendix to his treatise on gleans in 1728, in which he brought forward additional facts. To this Blondel replied in 1729, in a work† in which he humourously exposed anew the fallacy of Doctor Turner's and the popular opinion. This occasioned the publication of a more seri-

* The strength of imagination in pregnant women examined, and the opinion that marks and deformities in children arise from thence demonstrated to be a vulgar error. London, 1727.

† The power of the mother's imagination over the fœtus examined, in answer to Mr. Daniel Turner's book, entitled "A defence of the twelfth chapter of his treatise *De Morbis cutaneis*," Lond. 1729.

ous reply* from Turner, who still maintained his original opinion, and supported it by farther cases adduced from Skenkius, Hildannus, Horstius, and other retailers of prodigies; notwithstanding which, the good sense and sound reasoning of his antagonist prevailed, and the absurd doctrine of the mysterious power of the maternal mind became at length confined chiefly to superannuated practitioners, and superstitious nurses; although the fourth edition of Doctor Turner's work, with a fierce-looking portrait of the author, appeared in 1731, still retaining the twelfth chapter without alteration.

In 1727 a small work,† designed as a kind of domestic Medicine was published in Paris by Peter Desault, a native and graduate of Bourdeaux, who was author likewise of a work on gout and syphilis, which last he professed to cure without salivation. Desault's practice excited some opposition, which called forth a vindication in a work‡ which he published in 1736 on the subject of calculus, wherein he strongly objects to the operation of lithotomy, which he regarded as perfectly unnecessary, since the stone admitted of solution, without the aid of cutting, by drinking the waters of Bareges, and injecting them into the bladder. These waters had acquired a high reputation for their supposed lithontriptic

* The force of the mother's imagination upon the *fœtus* in utero, still farther considered, in the way of a reply to Dr. Blondel's late book &c. Lond. 1730.

† *Nouvelles decouvertes concernant la santé, et les maladies les plus fréquentes.* Desault 12mo. Paris. 1727.

‡ *Dissertation sur la Pierre des reins et de la vessie,* 3 vols. 12mo. Paris 1736.

powers; and were believed to be as potent in relieving the pain, and dissolving calculi in the kidneys, ureters, or bladder, as Mrs. Stephen's celebrated remedy lime water, or Castile soap, both of which came into vogue about the same time; they are still employed to alleviate pain, though no longer regarded as possessing lithontriptic powers. In the second volume of this work, Desault treats of hydrophobia, and expresses his belief that this formidable malady admitted of cure by mercurial friction: experience however has not served to corroborate this opinion. As to the vulgar notion of hydrophobic patients biting their attendants, and barking like dogs, he treats it with the contempt and ridicule it deserves.

John Douglas, of whom mention has already been made when speaking of his brother's History of Lithotomy, published in 1729 a work* in which he strongly recommends the use of bark in arresting the progress of gangrene; a practice which is still successfully pursued: he also published in 1736 some account of midwifery,† in which he unmercifully criticises the works of Chamberlen and Chapman; and in another publication he decries the obstetric forceps recently invented by Smellie.

James Denys, a celebrated accoucheur and lithotomist, published in 1731 a work on this latter subject which contains many valuable observations, on the symptoms by which the presence of stone in the bladder may be discovered with cer-

* An account of Mortifications, and of the surprising effects of bark in putting a stop to their progress. Lond. 1729.

† A short account of the state of midwifery in London.

tainty, accompanied by a description of a great variety of calculi, of which he appears to have possessed a large collection; calculus being as frequent in Holland, as it is rare in Bavaria. He mentions having taken from the bladder of a subject, a large stone with several branches, which had given the patient no uneasiness in his life time: and he also speaks of another which he cut out of the knee of a patient. His treatise on midwifery, one of the best extant, was published in 1733, but, being written in Dutch and untranslated, is less known than it deserves. Denys was physician and accoucheur to the college for improving the practice of man-midwifery, founded at Leyden in 1719: and he had been the pupil and coadjutor of Mr. Rau the lithotomist, whom he eventually succeeded in practice.

It has already been observed, when speaking of the obstetric forceps originally invented by the Chamberlens during the seventeenth century, that a veil of mystery was purposely thrown over it by its contrivers, who only revealed its nature or its use to those who were content to purchase the knowledge at an extravagant charge. In 1732, however, the secret was first partially revealed by Mr. Butter, who published an account of its construction and use in the third volume of *Medical Essays*; and more fully by Edmond Chapman, a distinguished surgeon and accoucheur, who has the merit of having been the first to give a representation and description of it in 1732, above sixty years after its first introduction by its inventors. Chapman distinguished himself in London by his skill and experience in difficult labours, in which,

when any other part besides the head presented, and even in some cases of head presentations, he turned the child and delivered it by the feet; and in many cases, in which it had been usual to employ the crotchet, he was in the habit of using the forceps. So carefully had the Chamberlens guarded the secret of this instrument, that no account whatever had been published of it before that given, as we have just mentioned, by Butter, and the fuller one given by Chapman,* in his *Treatise on Midwifery*. The latter was a work of considerable merit, containing, among other things, an accurate figure and description of this instrument, which he had improved considerably, accompanied by an ample detail of cases. Sometimes he employed a fillet, but on the whole preferred the forceps. Chapman justly condemned Deventer's rude practice of forcing back the *os coccygis* in difficult cases, and combated the opinion advanced by that writer, that labour is frequently prolonged by the oblique position of the uterus in the pelvis. He also answered the attack† already spoken of, as having been made by Douglas on the *midmen*, as he calls them, and defended the accoucheurs with considerable ability against his strictures.

In 1739 also appeared a general View of the State of Physic,‡ with a plan for its improvement, written by Dr. Clifton, who commenced his work

* *Treatise on the improvement of midwifery, chiefly in regard to the operation: with cases*, 8vo. Lond. 1732.

† A reply to Douglas's short account of the state of midwifery in London, 8vo. 1737.

‡ The state of physic, ancient and modern briefly considered, with a plan for improving it, Lond. 8vo. 1732.

with a Compendium of Medical History, written after the manner of Friend's, but by no means with equal accuracy. He is decidedly partial to the empirics, among whom he ranks Hippocrates, but is as decidedly hostile to Galen. He proposed to compel physicians by law to keep registers of their cases, to be recorded in an institution formed for the purpose,—these records to be limited to a detail of symptoms and practice. In a work* published in the preceding year, he recommended the warm bath in small pox, and condemned the purgative plan recommended by Mead and Freind.

In 1737 J. G. de Hahn published an Account† of the destructive Epidemic which proved so fatal in that year at Breslaw, in Silesia, in which we meet the first trace of the practice of cold affusion in fever among the inhabitants of Europe. De Hahn himself laboured under the epidemic, and was cured, as he tells us himself, by "*peregrina illi multis visa medendi methodus.*" In this complaint, in which the mortality is represented as dreadful, and the panic produced as general, the method of cold affusion was not tried till after every other plan of cure had been resorted to in vain. In the first case in which it was employed, that of a merchant at the age of thirty-two, seven days were suffered to elapse before they had recourse to it, and then it was only through the medium of sponges: "*tum ad externas illas hu-*

* A plain and sure way of practising physic, 8vo. Lond. 1731.

† "Epidemia verna quæ Wratislaviam, anno 1737. afflixit;" inserted in the appendix to the "Acta Physico-Medica Germanica." Vol. X.

meritationes confugiebamus, indefessè operè spongiis omnem corporis ambitum demulcentes :" yet even this tardy and imperfect mode of employing the application of cold was productive of the most favourable results ; while in a perfectly similar case, in which *the cold practice was rejected, the patient died.* His own case, which he details most minutely, exceeded in severity even those previously detailed ; and he was almost in the last stage of the complaint, trembling on the very margin of the tomb, and his lamp of life quivering in the socket, before a trial was made of this omnipotent remedy. It was the fourteenth day from the commencement, and cold sweats had come on with a failure of speech and an involuntary discharge of urine, yet from this apparently hopeless condition he was recovered by freely sponging with cold water. "While the laws," however, as Dr. Currie very justly remarks in his Commentary upon these cases, "while the laws by which the affusion of cold water ought to be regulated were not understood, the use of the remedy must have been extremely hazardous, and the fatal consequences of its *improper* application we can easily believe to have prevented its gaining any ground on the continent, or having been adopted in Britain. Those laws are now, I hope, ascertained by ample experience ; and practitioners will, I trust, find themselves directed in safety in the future use of this powerful remedy."*

Abraham Kaan Boerhaave, grandson to the illustrious Professor at Leyden, published, in 1738,

* Med. rep. vol. i. p. 78. ed. 4. Lond. 1805.

a work,* in which he demonstrated the existence of insensible perspiration, both from the external surface of the body and from the internal surface of all the principal cavities; and a few years after, he composed another work,† in which he explains the action of the mind upon the body through the medium of the nerves; and treats of the structure and motion of the muscles, and the effects of opium administered to a dog. He also describes the anatomy of the elephant, which he had an opportunity of dissecting, as well as of two monstrous children; and adds a dissertation upon what are improperly denominated hermaphrodites.

In 1739 appeared the first volume of the celebrated Albert Haller's Commentaries‡ upon the Lectures of his former master Boerhaave; a work which will long maintain its reputation. The publication was not completed before 1744.

Few things are more repugnant to the dictates of humanity, or productive of more melancholy results, than the system of hasty interment so universally and indiscriminately enforced by law in France. The evils of this practice which cannot fail to be apparent to all who duly consider the matter, appeared of such magnitude to John James Bruhiere, a native of Beauvais, and a man of a feeling and benevolent disposition, as to require a legislative remedy; and, with

* *Perspiratio dicta Hippocrati per universum corpus anatonice illustrata.*

† *Impetum faciens dictum Hippocrati, per corpus consentiens, philologice et physiologice illustratum, 12mo. Lugduni Batavorum, 1743.*

‡ *Commentarii ad Hermannii Boerhaave prelectiones academias, &c., 7 vols. 8vo. 1739-44.*

a view to call attention to the subject, he published, in 1742, a work on the great Uncertainty of the Signs of Death, and the impropriety of hasty Interments.* To put this matter in the strongest light, he was at the pains to collect a multitude of cases of persons supposed to have been dead, who had afterwards recovered, some of them even after interment. Bodies, as he very properly remarks, should not be interred, at least where the slightest doubt exists, till after decomposition has actually commenced. In a later work on the same subject† he contends, that burial should not take place before the fourth day; and, in an addition to his Memoir, he gave farther examples of persons who had come to life after interment. These works of Bruhiere, which have been extensively translated and circulated, have, it may be hoped, been the means of saving many valuable lives.

About this time, Frère Jean de St. Cosme or Come, a monk of the order of Feuillans, acquired great reputation by his skill in Lithotomy, which he practised without emolument, from the most disinterested motives of humanity. Partly from this circumstance, but still more from the reputation he enjoyed for success, he had so much occupation with patients of this description as to interfere with the practice of the regular surgeons, and excite their hostility. He had been regularly bred a surgeon himself before he retired from the world; and he employed for operating what he called his "*litho-*

* Dissertation sur l'incertitude des signes de la mort, et l'abus des enterremens et embaumemens précipités. Paris, 1742.

† Mémoire sur la nécessité d'un règlement général au sujet des enterremens. Paris, 1745.

toine caché," a hollow tube concealing a knife, with which he cut through the prostate gland into the bladder, making the aperture sufficiently large to extract the stone without injury to the parts, a circumstance to which his great success was probably owing. The surgeons, alarmed at his growing celebrity, applied to the King to interdict his practising; but failing in their object, endeavoured to check him through the medium of the press, criticising his Dissertation on the mode of operating, which was published in the *Journal des Savans* in 1748, and attacked in the following year by M. de Cat,* to which attack Cosme replied, in 1751,† in a work consisting of a number of cases and observations, wherein he admits some instances of failure, and the loss of one patient by hæmorrhage, but, at the same time, challenges his adversaries to produce as equal lists of successful cases as his. That his success arose, however, more from his own personal dexterity in operating, than from any superiority of the instrument he employed, appears probably from the disuse of the latter almost as soon as it ceased to be directed by his master-hand.

In 1753 Walter van Doevern, a skilful anatomist, accoucheur, and professor of medicine, at Leyden, published a *Treatise on intestinal Worms*, containing an accurate description of the various kinds which infest the human body, with the mode

* *Lettre au sujet de l'opération cachée, par M. de Cat, F. R. S. E.* Paris 1748.

† *Revue des pièces importantes sur l'opération de la pierre.* Paris 1751.

‡ *Théorie de vermes et infestés humains.* Paris 1753.

approved treatment of the disorders which they produce. His most valuable work is his *Anatomical Account of various Monsters**, &c., in which he notices the rupture of the bladder in pregnant women, and of the uterus during a difficult labour: he also speaks of the successful extirpation of a polypus in the uterus by means of a ligature.

John Huxham, an eminent practitioner at Plymouth, where he enjoyed considerable reputation and, if we may judge from his writings, extensive practice, distinguished himself considerably as a medical writer about this period, having, as he informs us himself in the preface to his *Essay on Fevers†*, (of which the third edition appeared in 1757,) published about ten years before a volume of observations on Air and Epidemic diseases, from 1727 to the end of 1737‡, and having, at the time of writing that preface, an additional volume of similar observations from 1738 to 1747 inclusive, ready for the press. Huxham, although he founded his practice on the basis of experience, was an advocate for the study of the doctrines and practice of the ancients, and more especially of Hippocrates; for although he does not by any means suppose that a man cannot become a good physician without drinking from the fountains of antiquity, he expresses his firm conviction that he will

* *Observationum anatomicarum ad monstrorum historiam, anatomiam, pathologiam, et artem obstetricam præcipue spectantium*, 4to. Groningen, 1765.

† *An Essay on Fevers*, to which is now added a dissertation on the malignant ulcerous sore throat. Third edition, Lond. 1757, 8vo.

‡ *Observationes de Aëre et Morbis Epidemicis*, &c. 3 v. 8vo.

make a better physician by this means. He is of opinion that had the course laid down by Hippocrates been strictly followed by all his successors, the art of healing would have been carried to far greater perfection than it has been, and would have kept a more even pace with the numerous and brilliant discoveries made in all the collateral branches. He declares himself favourable to rational theory in physic, regarding it as the basis of all just and regular practice; but such theory should be, as Hippocrates recommends, *κατὰ φύσιν* *Σωφρων**. The Doctor then takes a brief review of some of the principal writers of the ancients, among whom he awards the palm to Celsus, of whom he says that "his Latinity is most elegant, his Physic and Surgery surprisingly just†." He remarks that none have followed Hippocrates more closely than Aretæus of Cappadocia, who has even affected his very words and style. He expresses a just surprise that no one should have noticed Aretæus before Ætius, who wrote in the fifth century; (the *Euporista*, ascribed to Dioscorides, in which his name occurs, being generally allowed to be spurious;) and declares his conviction that Aretæus did not flourish till after the time of Nero. He remarks the coincidence in many points between the writings of Archigenes and Aretæus, especially their both recommending some particular remedies scarcely to be met with in other writers, such as the external use of can-

* De Viet. ac. sectat. xlv. Edit. Lindeni.

† Preface, page viii. edit. 3.

tharides, which is only mentioned by these writers and Celsus. From this, in conjunction with the silence of Galen, Juvenal, Oribasius, and others who notice Archigenes, but are silent respecting Aretæus, he concludes that the latter lived at a much later period, and borrowed from, or new modelled the works of the former. To Cælius Aurelianus he gives the praise of accuracy in his descriptions of disease, notwithstanding the many barbarisms of his style; and he particularly commends Alexander of Trallia, who, although a close follower of Hippocrates and Galen, whom he styles *ἐκράτορ*, displays considerable originality of thought, and correctness of observation. In his chapter on putrid and malignant fevers, he points out an error* committed by the great Sydenham, in regarding all fevers as inflammatory, and shews that however applicable the depletory practice he recommends may be to those of a truly inflammatory character, it is perfectly unsuitable where the typhoid character prevails.

Of this celebrated practitioner but few biographical notices exist, and these are chiefly to be found in an account of his life written, from very meagre materials, by the late excellent Dr. Woolcombe of Plymouth, who has done all the justice in his power to the memory of his fellow-townsmen. We learn from his works that he was a fellow of the College of Physicians, and from other sources, that he was father to John Corham Huxham, of Exeter College, Oxford, who took the degree of Master on the 20th of March 1746, and is the

* Essay on Fevers, p. 100. edit. 3.

only person of that name in the Catalogue of Graduates published in 1801. Dr. Huxham was a Fellow of the Royal Society, to whose transactions he contributed many papers on pathology and morbid anatomy. He has left few formulæ of medicines in his works, because, as he observes with Hippocrates, "He that knows the disease knows what is proper to cure it."^{*} In his chapter on putrid and malignant fevers, however, he gives a formula for the excellent tincture of bark† which yet bears his name, and is one of the best preparations of that valuable remedy which we possess. He appears, from the short sketch inserted in Rees' Cyclopaedia, to have died at Plymouth in 1768, and it is to be regretted that his son, who published the third volume of his observations on the Epidemics prevalent in the neighbourhood of Plymouth, in 1770, two years after his decease, should not have availed himself of that opportunity to perpetuate some biographical particulars of a man who deserved so well of science.

For the first time in the annals of Medicine our attention is demanded to the medical transactions of our transatlantic brethren; among whom the first dawning of a medical school appears in the courses of lectures on Anatomy and Surgery delivered in 1763 and 1764, to a small class at Philadelphia, (a town which seems ever to have taken the lead in the improvement of science,) by Dr. William

* Preface page xiii. edit. 3.

† Essay on Fevers, page 122. edit. 3.

Shippen. In 1765, lectures on the Institutes of Medicine, and the Practice of Physic, were read at the same place by Dr. John Morgan, and again in 1768, by the venerable Dr. Kuhn, who, having been a pupil of Linnæus and graduated the preceding year at Edinburgh, was made Professor of Botany and Materia Medica;—to which catalogue of teachers the name of the illustrious Benjamin Rush, the Hippocrates of Colombia, was added on his return to America in 1769, after having completed his studies at Edinburgh under that galaxy of medical luminaries, the elder Monro, Gregory, Cullen, and Black. The necessity of proceeding briefly to the close of the present work precludes the possibility of dwelling on the conspicuous merits of this great man, the worthy namesake, and fellow citizen of that great and good man, Benjamin Franklin, who was the father, as he may be justly deemed, of modern electricity, and the first who, rivalling the boldness of Prometheus, dared to light the torch of science with fire taken from heaven itself.

The organization of the Medical School at Philadelphia cannot, however, be regarded as complete, or its existence established upon a permanent basis, before the year 1791, in which the Medical College at Philadelphia, which had previously subsisted as two distinct and independent establishments, was consolidated by incorporation into the University of Pennsylvania, and Dr. Rush appointed Professor of the Institutes of Medicine and Clinical Practice. This eminent professor and amiable man, who may justly be regarded as

the founder of medical science in his native country, and who, as a writer, was distinguished not only for the multiplicity and variety, but also for the vigour, accuracy, and originality of his productions, terminated his active life on the 18th of April, 1814, in his 69th year. His descriptions of disease are exceeded by none in minuteness and accuracy and are excellent models for succeeding writers: and his accounts of the several epidemics of the United States rank with those of Sydenham and Boerhaave.

In 1764, a dispute arose among the obstetric practitioners in Paris, on a question of considerable importance as connected with legitimacy of birth, and descent of property. A woman having been delivered of a child ten months and seventeen days after the death of her husband,—John Le Bas, a surgeon and accoucheur of eminence, was called upon for his opinion as to the infant's being the child of its supposed father, and gave it in favour of its legitimacy, supporting his decisions on the authority of Aristotle, Pliny, Shenkins, and other dealers in the marvellous, as well as on judicial decisions in various parts of Europe, in favour of births protracted even to twelve months, which he deemed to be within the limits of possibility. On an appeal to another court, however, Paré, Bouvart, Lewis, Petit, and others, gave opinions in direct opposition to that of Le Bas, limiting the time of parturition to nine calendar months, or about forty weeks from the period of conception, admitting indeed a possible extension of this time to ten or twenty days, but denying that in any one well

authenticated case, proof had been given of the birth of a living child after a more protracted period. The controversy upon this point was long and furious, but the opinion of Paré ultimately prevailed, and is now generally received.

To the suggestions of the learned and classical Heberden, given to the College of Physicians in 1766, science is indebted for the publication of the *Medical Transactions*, in which he proposed to embody such observations as might have occurred to any of the members of that learned body as being calculated to illustrate the history or cure of diseases. Dr. Heberden himself contributed largely from his own redundant stores to the contents of those volumes which have appeared. Among other contributions from his pen will be found the first description of *Angina Pectoris* as an idiopathic disease; and the first accurate description of the chicken-pock, clearly distinguishing between that and small pox, with which it is too frequently confounded. After his death, in 1801 at the age of 91 years, his *Commentaries on the History and Cure of Diseases** were first published (in 1802) by his son Dr. William Heberden, with a dedication prefixed to George III, and a concise biographical sketch of his father; this was accompanied at the same time by an English copy printed from the author's own MS.

The first printed notice we have of the phenomena of galvanism is to be found in a work pub-

* *Gulielmi Heberden Commentarii de Morborum Historia et Curatione*, 1 vol. 8vo. 1802. Editio altera, 1807.

lished in 1767 by George Sultzer,* a native of Winterthur in the Canton of Zurich, under the title of "*The General Theory of Pleasures*," in which he mentions the sensation produced upon the tongue by the contact of two different metals with the tongue interposed. All natural phenomena being at this period accounted for on the doctrine of vibration, Sultzer explained the sensation thus produced on this principle; and this solution satisfying the world for the time, the brilliant discovery of galvanism was suffered to slumber in ignominious obscurity for a farther period of nearly forty years, till dragged to light by the genius of Galvani, and illustrated by the researches of succeeding philosophers.

An improvement in the manner of reducing hernia was introduced, in 1768, by Lewis Le Blanc, (a skilful surgeon and lithotomist, who practised at Orleans in France,) in a work† which he first published in that year: in this he recommends dilating the ring, if possible, (as he says is the case in recent ruptures,) with the finger, if not, with a pair of forceps of his own invention, in place of using the knife. This method being objected to by Anthony Louis, Le Blanc replied in a Dissertation, published in the fourth volume of the *Memoirs of the Academy of Surgery*.—When the hernia has been reduced by his method, no truss is required, as invariably happens when

* John George Sultzer, the youngest of twenty-five children, was born 1720, and had the misfortune to lose his parents on the same day in 1734.

† *Nouvelle methode d'opérer des hernies*, 8vo. 1766.

the ring has been divided: the forceps are introduced into the ring in a closed state, and open afterwards by means of a spring. In 1775 he republished this work, along with his *Dissertations on Lithotomy*,* and on the method of extracting small portions of the placenta left behind in the uterus, together with farther remarks on hernia, in his general work on the *Operations of Surgery*.†

In 1771 appeared the first edition of a work which, whatever its merits, acquired, almost from the instant of its publication, a popularity almost unprecedented in the annals of bibliography; this was the celebrated, and even yet highly popular, 'Domestic Medicine' of William Buchan, founded upon the model of Tissot's "*Avis aux peuples*," to which it is in no respect inferior. This plan of exhibiting the method of treating diseases in a popular form has been strongly but unjustly censured, as tending to lower the profession in public estimation, and to diminish their gains. Notwithstanding the enormous sale of Dr. Buchan's work—of which no fewer than nineteen editions, averaging, at least, five thousand copies each, or ninety-five thousand copies in all, were disposed of within the first forty years after its appearance,—we do not find that there is one physician the less employed, or one fee the less taken. In fact, works of this description, like popular treatises upon law, serve only to lead people on a little way, till, getting bewildered in the

* Originally published in the *Journal de Médecine*, vols. 30, 35, and 39.

† *Precis d'opérations de Chirurgie*, 2 vols. 8vo. 1775.

labyrinth, they are glad to implore the aid of professional guides to extricate them. The complaint which a single visit of the physician, aided by the expenditure of a few shillings in medicine, might have arrested in the infancy of its course, gains head under the imbecile attempts of ignorance to subdue it, and multiplies the gains of the physician, the surgeon, and the apothecary, fully an hundred-fold. But the popularity of Buchan's work was not confined to his own age, his own country, or his own language; its fame has long outlived its author, and it was translated into the language, and circulated in the territories of almost every nation in Europe, and procured him the honour, not only of a gold medal, but of what, it is probable, he prized still more highly, an autograph letter from the Empress of Russia.

It having occurred to the celebrated Dr. Jenner, an eminent practitioner in the county of Gloucester, as a somewhat remarkable circumstance, that there were many of those whom he met with in practice whose constitutions were proof against the assaults of small pox, he was led, about the year 1776, to undertake the investigation of the cause of so remarkable a fact; in the progress of which he learnt, that those whom he had found thus fortified against the contagion of variola, had undergone the *casual cow-pox*, a complaint familiar from time immemorial in the dairy districts of that county, and reputed, in the popular opinion of the inhabitants, to be a preventative of the small pox. Upon farther inquiry he found some *apparent* exceptions to this rule, but, pushing his

investigations farther, he discovered these exceptions to result from the circumstance of the cow being subject to a variety of pustular eruptions differing widely in their nature, although indiscriminately classed by the ignorant under the name of cow-pox; one only of which was the genuine and unfailling prophylactic against the devastations of small-pox. Having, after a variety of researches, arrived at length at this stage of his inquiries, it occurred to him that this complaint, like variola, might be communicated by inoculation; a conjecture the truth of which was triumphantly confirmed by a multitude of the most decisive experiments. In 1778 Mr. Cline successfully inoculated a child with virus received from Dr. Jenner, (who had, in the preceding month, given his first publication on the subject to the world,*) and afterwards exposed the child to the test of variolous inoculation in three places, but without producing the slightest effect. Upon this occasion Mr. Cline assured Dr. Jenner, that both he and Dr. Lister, who had been physician to the small-pox hospital, were fully convinced of the efficacy of the vaccine inoculation, and that the substitution of this mild, manageable, unctagious disease for small pox, promised to prove one of the greatest improvements in modern practice.

The merit which thus indisputably belongs to Mr. Cline of having vaccinated the first patient in

* An Inquiry into the causes and effects of the variolæ vaccinae, a disease discovered in some of the western counties of England, particularly in Gloucestershire, and known by the name of the cow-pox. 1798.

London, has been attempted to be taken from him by the claim of another practitioner, which is far from resting on an equally solid foundation.*

To follow the history of this valuable discovery through all the fluctuations of its progress to triumphant maturity, would be foreign to the design of a work whose essence is conciseness: and it must be sufficient to add, that truth has at length triumphed over ignorance, selfishness, and envy—and, if the tooth of calumny still makes puny efforts to corrode the adamantine pillar of Jenner's well earned fame, her efforts only resemble those of the viper against the file—reacting upon herself, and making her the victim of wounds designed for another.

During the greater part of this century the School of Medicine, at Edinburgh, of which the elder Monro may justly be regarded as the founder, enjoyed a succession of teachers unrivalled, perhaps, by any university in the world; and among the number the names of Monro, Cullen, and Gregory, must not be passed over in silence.

* From a statement published in Bohemia of the number of deaths occasioned by small pox during the last thirty years, it appears that, notwithstanding the vast and rapid increase of population, the relative proportion of mortality from that complaint has been greatly lessened through the influence of vaccination. In the years 1799 and 1800, out of 125,750 children who were born, 17,000 fell victims to variola, being at the rate of 135 out of every 1,000—while the average number in 1828 hardly reached to 4 out of every 1,000. In 1809 the number of births was 134,651, of which number 13,291 died of small pox; while in 1828, out of 144,095 births, but 520 fell victims to the variculous contagion. Such has been the happy result of the extended practice of vaccination among the inhabitants of those regions.

William Cullen, one of the three, the son of respectable but by no means wealthy parents, was born at Lanark in 1712, and after experiencing a variety of vicissitudes, was appointed Professor of Chemistry at Glasgow in 1746, and in 1751 was advanced to the chair of Medicine. On an invitation to fill the chemical chair at Edinburgh, on the death of Dr. Plummer, he removed thither in 1756, and soon became as great a favourite as he had been at Glasgow; his colleague in Anatomy, the illustrious Monro, alone out-numbering the crowd of his pupils; a popularity partly to be ascribed to the novelty of his opinions, and the new theories he occasionally broached in his lectures.

On the death of Dr. Alston, in 1760, Cullen succeeded to the chair of *Materia Medica*; on which subject he continued to lecture till 1766, when, in conjunction with the classic Gregory, he was promoted to the chair of Medicine in the place of Rutherford, and resigned the Chemical chair to Black. Gregory dying in the following year, Cullen held the sceptre of Medicine with undisputed sway for the rest of his life.

His Lectures on *Materia Medica* were first published from notes taken by one of his pupils in 1772; and in 1784, fearing a similar fate for those he had delivered on medicine, he published them himself.* Of this admirable work, in which he expounds his peculiar theory of Fever, our limits do not admit our giving the slightest analysis; but as we have already

* First Lines of the practice of physic, 4 vols. 8vo. Edinburgh, 1784.

referred to the rules he laid down for venesection, some abstract of them becomes indispensable. The circumstances under which, and the manner in which this operation should be conducted, are thus laid down by Cullen:—"1st. The nature of the prevailing epidemic. 2nd. The nature of the remote cause. 3rd. The season and climate in which the disease occurs. 4th. The degree of phlogistic diathesis present. 5th. The period of the disease. 6th. The age, vigour, and plethoric state of the patient. 7th. The patient's former diseases, and habits of blood-letting. 8th. The appearance of the blood drawn out. 9th. The effects of the blood-letting that may have been already practised. When, after the due consideration of these circumstances, blood-letting is determined to be necessary, it should be observed, that it is *more effectual*, accordingly as the blood is *more suddenly drawn off*, and as the body is, at the same time, more free from all irritation, and, consequently, when in a posture in which the fewest muscles are in action.*"

On taking possession of the chair of Medicine at Edinburgh, Cullen found the system of Boerhaave, which he had himself learned in youth, the prevailing and indeed the only system in existence, and, seeing its defects, he set about endeavouring to amend them: how far he succeeded, the popularity and rapid extension of his doctrines fully attest.

* First Lines, vol. 1, ch. vi. sect. 1. cxlii and cxliii.

Cullen's most esteemed work is his *Nosology*,* exhibiting the nosological system of Sauvages, Linnaeus, Vogel, Sagar, and Macbride, in the first, and his own method of arrangement in the second volume. The fourth edition, published in 1785, contains his latest corrections. Cullen continued to fill his post with equal dignity and talent nearly to the instant of his death, retaining his faculties, and especially the soundness of his memory, and the distinctness, clearness, and precision of his delivery, to the last. His Lectures were not committed to writing, but delivered from short notes, upon which he framed an extemporaneous commentary, expressed with ease, with fluency, with conciseness, and yet with elegance. He continued to deliver his lectures till within a few months of his death, which took place on the 5th of February, 1790, in his seventy-seventh year.

The name of that eccentric and ill-regulated genius John Brown, (who, with all the fiery brilliancy of a comet's blaze, and with more than a comet's irregularity of course, approached the perihelion of our northern luminary, only to recede from him with augmented velocity into the endless regions of absurdity,) has become so inseparably connected with that of his illustrious opponent Cullen, that, narrow as are the limits into which the present work is now necessarily contracted,

* *Synopsis Nosologiae methodicae*. Ed. 4ta. 2 Tom. 8vo. Edinburgi, 1785.

some mention, however slight, must be made of him, and of that theory to whose practical effects he was himself a victim, and whose absurdities are fast sinking into oblivion, while the very blemishes of his rival's doctrines are remembered with respect.

John Brown was born of parents in the humblest and poorest class of Scotch peasantry, residing in the parish of Bunde, in Berwickshire, where he first saw the light in 1735. To follow him through all the vicissitudes of his early life, and recapitulate the irregularities which served at once to mark his genius, and to mar his fortunes, would be to swell this outline far beyond its just proportions. His original destination was the church, and his first visit to Edinburgh, in 1755, was with a view to the study of theology; he had even delivered his probationary discourse preparatory to ordination, when, in one of those unaccountable freaks to which he was subject, he abruptly quitted Edinburgh, and returning to the school at which he had been educated, resumed the drudgery of an usher. During this period we find him flying with his usual velocity from the extreme of puritanism, to its opposite of licentiousness, debauchery, and free-thinking.

At length, in 1759, he offered himself, but without success, for a vacancy in the High School at Edinburgh; and soon after commenced the trade of writing or translating Inaugural Theses, for those who either had not talent or were deficient in the erudition requisite to the performance of the task for themselves. This occupation diverted his

thoughts to the study of Medicine ; and, had he possessed that stability which would have been of more essential service to him than all the flashy splendour of his meteoric talents, he might rapidly have risen to wealth and fame ; but his habits of intemperance sapped at once his reputation, his fortune, and his constitution. At this period, however, his good fortune led him to an acquaintance with our British Boerhaave, the learned and benevolent Cullen, who employed him as a tutor for his sons, and an assistant at his lectures, the substance of which Brown repeated and expounded in the evening to his pupils. Having married, and opened a house for boarders, which was rapidly filled, he might yet have recovered himself, had not the invincible improvidence of his disposition, continuing to be his bane, involved him in bankruptcy. Three or four years after, he became a candidate for a Professor's chair in the University, but failing, chiefly, as he imagined, through the influence of Cullen, he at once cast away all remembrance of his past kindness, regarded him with the most determined hostility, and resolved on opposing him as a rival, and setting up a system founded upon principles as widely removed as possible from those of the venerable professor of Medicine. Little addicted to profound study, and but imperfectly acquainted with the doctrines of authors, the theory which he now broached was necessarily the fruit of reflection, rather than study or experience ; and that his natural propensity for spirits had considerable influence in its formation, may almost be inferred from in-

ternal evidence, and from the effect he ascribed to them of mitigating the severity of fits of the gout. He now commenced a course of lectures for the purpose of expounding his new and anti-Cullenian system, the singularity of which attracted multitudes of pupils. Preparatorily to these, on each evening, he gave a practical illustration of his doctrines, by taking fifty drops of the tincture of opium in a glass of whiskey, and he repeated the dose four or five times before he reached the conclusion. This artificial stimulus braced his nerves, and fired his imagination, as he proceeded in the developement of his doctrines. His object appears to have been to simplify medicine, and render it easier of access to those who disliked the labour of study, and desired short cuts in the road to knowledge. With this view he reduced disorders to two great classes, *sthenic*, and *asthenic*: the first proceeding from an excess, the latter from a deficiency of the *exciting* power. Disorders of the first class were to be relieved by *debilitating*, and the latter counteracted by *stimulating* remedies; of which description he regarded brandy, wine, and opium as the most potent, and the most valuable. *Asthenic* complaints being, according to his view of the subject, the most numerous, his opportunities of calling in the aid of these powerful auxiliaries were proportionably increased. Spasmodic complaints, and even hæmorrhages were referred by him to the *asthenic* class, and wine and brandy, hitherto regarded as prejudicial, recommended as the best remedies. Having at length digested his system, he gave it

to the world under the title of "*Elementa Medicinæ*," a work which is now chiefly regarded for the eccentricity of its doctrines, and the celebrity it once possessed.—Notwithstanding the hosts of auditors whom the novelty of his system at first attracted, the irregularity of his attendance, and his increasing habits of intemperance, concurred with the manifest absurdities of his theory to cause a rapid diminution of their numbers, and, his circumstances again becoming involved, he removed to London in 1786. Here he experienced, for a time, a favourable reception; but, giving the rein to his habits of intemperance, and returning to his lodgings in a state of intoxication, on the evening of the 8th of October, 1788, he took, according to custom, a large dose of laudanum—and was found a corpse in the morning; thus furnishing a practical illustration of the results of his own doctrines, before he had completed his arrangements for a course of lectures on the subject.

His "*Observations on the Old System of Physic*," which he had published during the year that preceded his death, as a preparation for the reception of his own hallucinations, attracted but little notice; and his visionary doctrines gained more ground among foreigners than his own countrymen. His opinions are sinking fast into merited oblivion, and his name only survives through its connection with that of his distinguished rival.

It has already been mentioned, when speaking

of the illustrious Cullen, that he was appointed, in conjunction with Dr. James Gregory, another star of the very first magnitude in our northern galaxy, to supply the place of Dr. Rutherford, in the chair of medicine in the year 1776, and that in the following year the unfortunate death of his valuable colleague left him sole monarch of the throne of Medicine.

Of Dr. Gregory neither materials nor space permit our giving any personal account, but it would be unpardonable to pass without notice his work on the Theory of Medicine, that work which has conferred immortality upon his name, and honour on his country. Our observations relating to him must be gleaned from a posthumous edition of the work itself.*

From the preface prefixed to the second edition of this work (which could not have been published much later than 1776, since its author, who wrote that preface, closed his earthly labours in the following year,) we learn that the first part of the work, comprising physiology, and pathology, had been published eight years before, or not later than 1768 or 1769, and that the flattering reception which, even in that unfinished state, the work experienced, induced, or almost compelled him, during the scanty intervals of leisure which his professional practice and professional duties af-

* *Conspectus Medicinæ Theoreticæ, ad usum Academicum. Editio Tertia, prioribus auctor et emendatur.* 2 vols. 8vo. Edinburgii, 1788.

forded, to complete this imperfect sketch. He thus presented to the world, a finished and incomparable work, which will long remain a standard of pure latinity and sound pathology. The work, completed, and rendered truly "*ad linguem factus libellus*," he divided into two volumes, as he says himself: "*His modis haud parum auctum, ne quid formidinis haberet volumen nimis crassum, in duos tomos dividendum curavi, adeo graciles, ut forma, saltem, vel delicatissimos lectores non terreant.*"*

To attempt even the slightest analysis of a work of such extent and of such vast importance, as the chaste and classical production of Dr. Gregory's master genius, within the narrow limits remaining for the present volume, would be as impracticable, as it would be absurd, and would serve only to tantalize, without satisfying the reader. Like the productions of Raphael, and the beauties of Titian, the original of Gregory's noble conceptions must be consulted in order to form a just conception of their excellence; to appreciate duly the qualities of the stream, we must seek it as it springs pure and uncontaminated from the parent rock; as some sketch however, of so splendid a monument of British erudition may not unreasonably be expected, an outline of its contents shall be attempted, however faint and defective the image it must afford of the classic original.

The first volume, which extends considerably beyond five hundred pages, is devoted to an investigation of the physiology and pathology of medicine,

* Præfat, p. 3. Ed. tertia.

distributed into twenty-three chapters, commencing with a general account of the functions of the living body, and closing with a description of the several varieties of constitution observable among men. The functions of the body are divided into *animal* and *vital*, the former comprising those which belong to our senses, and voluntary motions, "quibus" as the author elegantly expresses himself "quantumvis simplicibus, mundum cognoscimus, terrarum potimur:" the second, those which are so essential to life as not to admit of the slightest interruption or suspension, without instantly endangering the continuance of existence; as the action of the brain and nerves, the circulation of the blood, and respiration. His description of the progress of a man from the cradle to the grave, from the helplessness of infancy to the decrepitude of age, is so concise, so just, and at the same time so poetically beautiful, and so eloquently expressive, and furnishes so admirable a specimen of the classical purity of his style, that it would be an injustice to those who may read this volume, were we to omit to transcribe it:—"Sed ipse terrarum, et, quæ eas incolunt, animalium dominus, parvus, debilis, fatuus, omnium rerum inops nascitur: sola parentum cura, diu conservatur, fovetur, alitur: paulatim crescit, pubescit, adolescit, sapit; forma, et animi et corporis viribus, parentes æquat; eadem gaudet exercere munera; tandem, ingravescentibus annis, communem sortem subiturus."*

* Although it would be a vain attempt, with anything less

In the last chapter of this volume, devoted to an examination of the diversities of constitution, he justly observes that the shades of health are as various as the shades of complexion and the diversity of feature: he points out the folly of attempting to account for the variety of temperaments upon the principles of the ancients, and confines himself to an explanation of the nature of these temperaments, without bewildering himself, or misleading his readers, by a vain inquiry into the hidden causes which produce them. The second volume, equalling its companion in bulk, is devoted to the subject of therapeutics, and, after a general examination of the fundamental principles of this science, given in the first chapter, the nineteen which remain are occupied with a more minute investigation of the various descriptions of remedies, and the manner of their employment.

Upon the whole, Gregory's *Conspectus* is an honour to the age which produced as well as to the author who wrote it, and it merits a place beside the

than the fire of a Gregory's pen, to transfuse the slightest portion of the spirit of this exquisite description into a translation, yet for the benefit of the exclusively English reader a version is given—

"But man himself, lord of this mighty globe, and every animated being it contains, enters upon life small, weak, silly, destitute of every thing: by the unceasing vigilance of parental affection alone, during many years, he is preserved, cherished, supported: by degrees he grows in stature, attains to maturity, and acquires understanding: he assumes an equality of form, mind, and bodily strength, with his parents; and at length, borne down with the weight of growing years, shares the common fate." *Conspect. Med. Theor. Cap. 1. Vol. 1. p. 6. 14.*

volumes of Cicero, of Livy, and of Tacitus, in the library of the scholar, no less than on the table of the physician.

In an Italian work* published in 1786, five years before the appearance of Galvani's account of his discoveries, we find an additional circumstance, connected with the history of those discoveries, which is too curious and too interesting to be passed without notice. The narrative is given by M. Cottugno. "A medical student feeling a smarting sensation in the lower extremity of his leg, applied his hand to the part, and caught a mouse by which he had been bitten. Having killed, he resolved to dissect it, and, touching the intercostal nerve with his knife, was not a little surprised at experiencing an electrical sensation, sufficiently powerful to benumb his hand."

This fact awakened the curiosity of M. Vassali of the Royal Academy of Turin, who made in consequence a series of experiments on the subject, the details of which appeared in 1789.

Still, however, the experiment related by Sultzer, the fact communicated by Mr. Cottugno, and the reasoning and experiments of Vassali, continued only as isolated particulars, unconnected by any general or comprehensive views, and forming but the useless and disjointed fragments of a science from which no rational principles could be deduced, and no practical utility derived, till, in the year 1792, the celebrated Galvani laid the foundation of that splendid science which it re-

* Journal Encyclopédique de Bologne. No. viii. 1786.

mained for our distinguished countryman Davy to complete, by the publication of his interesting experiments in the first work* which he gave to the public on the subject. This immediately excited universal attention, and in the hands of Volta and De Luc, the agent was increased in power to a great extent; and, guided by the genius of Davy, has already led to the most important and unexpected discoveries respecting the composition of substances till then believed to be simple.

Although the discovery of galvanism falls within the limits of the eighteenth, its history belongs to the nineteenth century. Some notice, however, is due to the memory of the manto whom science is indebted for so important an addition to her stores, and electricity for such a wonderful extension of her powers.

Louis Galvani, from whom, as the first philosophic investigator of its principles, the science of which he laid the foundation justly derives its name, was born at Bologna on the ninth of September 1737: and having commenced his studies at an early age and taken his degrees in physic, was, while yet almost a youth, appointed to fill the anatomical chair in the university of his native town. In early youth he manifested a strong propensity for religious austerities, but was, fortunately for science, dissuaded by his friends from burying his talents in the useless oblivion of a convent, and induced to devote them to the ac-

* Aloysii Galvani de viribus Electricitatis in motu musculari commentarius. Mutinæ, 1792.

tive service of his fellow creatures and the prosecution of useful studies. So admirable was the method he pursued in the arduous task of communicating instruction, that his lectures were crowded with pupils, and his fame spread with rapidity. His researches in comparative anatomy, that of birds in particular, were eminently successful; and in addition to a number of curious observations on the urinary and auditory organs of birds, which were inserted in the *Memoirs of the Institute of Bologna*, he composed a number of professional memoirs which remain yet unpublished. A singular accident led to the discovery which has immortalized his name, and been pregnant with such important results in the improvement of science. His wife, the daughter of the celebrated professor Galeazzi, to whom he was tenderly attached, being in a declining state of health, was in the habit of taking a soup prepared from frogs as a restorative. Some of these which had been skinned and prepared for the service of the kitchen, chanced to be placed upon a table in Galvani's laboratory, while he was engaged in making some experiments with an electrical apparatus which stood upon the same table with the frogs, which lay at some little distance from the prime conductor. One of the company, who was assisting Galvani in his experiments, accidentally touching the nerve of the thigh of one of the frogs with the point of a knife the muscles of the limbs became instantly and powerfully convulsed; and, as Madame Galvani who was present, and much struck with the singularity of

the phenomenon, imagined, at the instant of every spark passing from the conductor: observing this to her husband he determined to investigate the fact, and accordingly on bringing the point of the scalpel, which he held in his hand, in contact with the crural nerves of one of the frogs, he found, as his wife had pointed out, that the muscular contractions were renewed as often as a spark was taken from the conductor. As this might have resulted simply from the irritation of the scalpel and not from the disengagement of the spark, to satisfy himself on this point he touched the same nerves, while the electrical machine continued in a state of quiescence, without exciting the slightest commotion. Upon this foundation he constructed the theory of the science, which, with the various modifications which the labours of succeeding experimentors introduced, still remains a lasting and noble monument of his industry and his talents.

The death of his wife, who expired in his arms in 1790, threw him for a time into a profound melancholy from which he never wholly recovered: he rallied however sufficiently in the following year to prepare his first work upon this novel and interesting subject for the press. The appearance of this volume excited, as might have been expected, great interest, and produced much controversy which terminated only in a confirmation of the doctrines of its author. Misfortune however shrouded the latter years of this excellent man in sadness, obscurity and poverty. Refusing, from motives of conscience, to sub-

scribe the civic oath required by the revolutionary governors of the Cisalpine republic, he was deprived of his public employments, while the busy hand of death robbed him of nearly the whole of his nearest and dearest relatives in quick succession. Oppressed with melancholy and distress, he retired to seek repose from persecution in the house of his brother James, a man of credit and respectability, where he fell into a state of irrecoverable debility. He had long suffered under an excruciating affection of the stomach, which was supposed to proceed from a disease of the pylorus, the progress of which all the exertions of his physicians Cingari and Uttini could not arrest. He was at length released from his sufferings on the 4th of December 1798 in the sixty-first year of his age. The republican governors, ashamed perhaps of their severity, and relenting in their cruelty, decreed his restoration to his honours, and emoluments; but too late! the irrevocable decree had gone forth, and Galvani reposed in peace.

CHAPTER XV.

Progress of Anatomy during the Eighteenth Century—James Douglas, the patron and predecessor of Doctor William Hunter as a Teacher of Anatomy in London—Excellence of his anatomical preparations: publishes a specimen of comparative Myography and of Anatomical Bibliography—Cheselden: his early proficiency in Anatomy: his Anatomy of the Human body: its great popularity—Heister's Compendium of Anatomy—Munro; Foundation of the Edinburgh School of Medicine; his Osteology—Paccioni's discovery of the Glands in the Longitudinal Sinus which bear his name—Winslow—Swedenbourg—Camper—Doctor Hunter, dies suddenly of Angina Pectoris: Post Mortem appearance of the heart—Cruikshank—Hunter's gravid uterus—Bell.

THE progress of improvement in anatomy and physiology, though not marked by any discovery equal in splendour to that of the circulation in the preceding century, was by no means destitute of incidents worthy of notice, or unproductive of names deserving of record. But we must be brief in our notice of incidents, and sparing in our selection of names.

Among the earliest and most successful cultivators of anatomy, during the eighteenth century, was the celebrated James Douglas, the predecessor of

the distinguished William Hunter as a teacher of anatomy in London. He was born in Scotland in 1675, and having completed his studies, settled as a teacher in London where he experienced the greatest success. Haller who visited him, speaks highly both of him and his preparations which were made with much skill, and calculated to show both the motions of the joints and the internal structure of the bones. He appears to have been meditating, at that time, an extensive work on anatomy which he did not complete. On Doctor William Hunter's first arrival in London, Douglas took him as an assistant at his dissections, and gave him, at the same time, an opportunity of improving himself by attending St. George's Hospital. In 1707 he published his specimen of Comparative Anatomy,* containing the most correct account of the muscles which had yet appeared, and giving a comparative description of all the muscles in a man and in a dog. In 1715 appeared his specimen of Anatomical Bibliography,† in which he gave a tolerably correct account of the several works upon anatomy, with biographical sketches of the writers; a useful and instructive work, of which an improved edition appeared at Leyden in 1734. His next publication, but one, was on the subject of the peritonæum,‡ and the cellular

* *Myographiæ comparatæ specimen*, 12mo. Lond. 1707.

† *Bibliographiæ anatomicæ specimen, seu catalogus pene omnium auctorum qui ab Hippocrate ad Harveum rem anatomicam illustrarunt*, 8vo. Lond. 1715.

‡ *A description of the Peritonæum, and that part of the*

membrane which is situated outside it: a work of ability and drawn up with the most accurate fidelity. He had a short time before published a treatise on Lithotomy which has been noticed in the preceding chapter. Besides these works he contributed many papers to the Royal Society on the anatomy of the uterus and neighbouring vessels, with a variety of cases in surgery which were published in the Philosophical Transactions. He died in 1742.

William Cheselden, who early distinguished himself by his proficiency in anatomy, which he had studied under Cowper, became in 1711, at the age of only twenty-two, a public lecturer on anatomy and surgery. In 1713, he published his *Anatomy** accompanied by some select cases in surgery, and a syllabus of his lectures. Such was the popularity which this work acquired, that, after having made various improvements, he had the satisfaction to see it pass rapidly through six editions. To the fourth, and all the succeeding editions, he subjoined, in an appendix, a short account of the operation of lithotomy, which he performed with success on nine patients in St. Thomas' in the manner recommended by his contemporary James Douglas. Failing, however, in some later trials, he adopted the method recommended by Rau, in which he made such improvements that out of the first twenty patients

Membrana cellucaris which lies on the outside of it, 410.
Lond. 1730.

* Anatomical description of the human body: with plates,
8vo. Lond. 1713.

on whom he operated, not one case of failure occurred. Notwithstanding the candour with which he admitted Douglas's improvements in the manner of performing the high operation, he was assailed in an anonymous pamphlet entitled "*Lithotomuscas-tratus*," which was attributed to the pen of some of the partizans of Douglas; but his reputation stood too proudly high to suffer from such impotent assaults. Cheselden, although a man of great tenderness, was enthusiastically attached to his profession in which his success was proportionate to the ardour with which he pursued it.

The most distinguished work of Laurence Heister, a celebrated physician, surgeon, anatomist and botanist, who has been already noticed in the last chapter, was his *Compendium of Anatomy** first published in 1717, which went through a great number of editions, and became a very popular book. It is valuable, both for its conciseness and clearness, as a physiological as well as anatomical school book. It completely superseded the work of Peter Verheyen, the defects of which he clearly exposed in his preface, and censured, not without reason, the omission of some of the principal discoveries of the English, Italian, and other anatomists.

We now reach a period the most distinguished of any in the medical annals of British History, the foundation, as it may be truly called, of the School of Medicine in Edinburgh, which has since attained, through the zeal and abilities of its

* *Compendium Anatomicum*, 8vo. 1717.

professors, the first rank among the medical seminaries of the world. This was chiefly, if not solely, effected in the first instance by the splendid talents, and unrivalled exertions of Doctor Alexander Monro, a name ever pronounced with respect. His father, a surgeon in King William's army, was resident, at the time of his birth in September 1697, on leave of absence in London. On quitting the army, Mr. Monro settled in Edinburgh where, perceiving his son's early indications of genius and strong inclination for medicine, he carefully superintended his early education and afterwards sent him to London to study anatomy under Cheselden, to which young Monro applied with the greatest industry; he likewise devoted himself with the utmost assiduity to dissection, and the preparation of anatomical specimens, which he sent home. While here, he laid the foundation of his most important work, that on the bones; a sketch of which he read before a society to which he belonged. From London he proceeded to Paris, and thence, in the autumn of 1718 to Leyden, where Boerhaave was at that period the mighty magnet of attraction. This distinguished teacher and acute observer made a most favourable report of his pupil, which his future eminence fully justified. Returning in 1719 to Edinburgh he was appointed professor and demonstrator of anatomy to the company of surgeons; and soon after commenced lecturing, employing the preparations he had made during his anatomical studies, as illustrations. Doctor Alston to whom

Cullen succeeded in the chair of *Materia Medica* in 1760, at the same time concurred in Monro's plan, and commenced a course of lectures on *Materia Medica* and Botany.

These were the first public medical lectures ever delivered in Edinburgh, and were the basis of that school which has since attained to such high distinction. The plan originated with Monro's father, who, by inviting the whole college of physicians and the company of surgeons, without previously acquainting his son, led him into that mode of extemporaneous delivery which contributed so much to his future celebrity; for becoming confused at finding an audience so different from what he expected, he forgot the whole of what he had prepared for delivery, and being unprovided with notes to refresh his memory, after some slight hesitation, he began, with great presence of mind, by exhibiting some of his preparations, in order to gain time for recollection, and then commenced an extemporaneous exposition of the purport of his lecture, without the slightest reference to his premeditated materials. A regular series of medical lectures was now, through the indefatigable exertions of Doctor Monro's father established in Edinburgh; and, to crown the whole, an infirmary having been erected, endowed and incorporated by charter, a course of clinical lectures on surgery was commenced by Doctor Monro, and ultimately on the Medical cases also, by Doctor Rutherford in 1748. None, however, contributed equally with

Doctor Monro to fan the growing flame of celebrity, and raise the school of Edinburgh to the proud pre-eminence it now maintains.

His osteology, first projected when only a student in London, was now completed and given to the public for the use of his pupils: it soon, however, acquired a more extensive popularity, passing through numerous editions at home, and being translated into many European tongues abroad. To the later editions a concise account of the nerves, lacteal system and thoracic duct was subjoined.

Not content with the services he had thus performed to science, the zeal of Doctor Monro led to the formation of a society for the publication of papers on professional subjects, to the contents of whose useful volumes the pen of Monro was the most copious contributor. In 1759 he resigned the anatomical chair, which he had filled with such distinguished zeal and ability for nearly forty years, to his son, still however continuing to deliver his clinical lectures at the infirmary. At length a fungous ulcer of the bladder and rectum, the pain of which he endured with the greatest patience and fortitude, terminated his long and useful life, on the 10th of July 1767, in the seventieth year of his age.

Antonio Accioni, a native of Reggio, and distinguished for his anatomical researches, especially into the structure of the brain, dura mater, &c. pub-

* Osteology, or Treatise on the Anatomy of the Bones. Edinb. 1726.

lished in 1721 his final disquisition* respecting his favourite subject, the supposed muscular nature and action of the dura mater. Although later anatomists have refused to admit his opinions, they were maintained with considerable ingenuity, and the investigations to which the controversy led, contributed greatly to improve our acquaintance with the parts which were connected with the subject in dispute. The controversy commenced as far back as 1701. Paccioni then published his first work on the structure of the dura mater,† in which he maintained the muscular and contractile nature of the dura mater, which he imagined, by means of its connection with the tentoria, to act by alternate compression upon the cerebrum and cerebellum; this opinion being contradicted by Baglivi, Fantonie, and others, he published a second dissertation on the subject,‡ in which he announced the discovery of glands in the vicinity of the longitudinal sinus. This discovery involved him in fresh disputes with other anatomists, and produced fresh vindications of his opinions and discoveries from himself,§ in which he defended his doctrine

* *Dissertationes physico-anatomicæ de Dura Meninge humana, novis experimentis et lucubrationibus auctæ et illustratæ.* Romæ, 1721.

† *De Dura Matris fabrica et usu, disquisitio anatomica.* Romæ, 1701.

Dissertatio epistolaris de glandulis conglobatis Dura Meningis humanæ, indeque ortis Lymphaticis, ad piam matrem productis, ad clarissimum virum Lucam Schroëckium. Romæ, 1705.

§ *Dissertationes binæ ad spectatissimum virum Johannem Fantonium datæ, &c.* Romæ, 1713.

of the glandular structure of those parts. The glands which thus involved their discoverer in such bitter controversy are situated on the inside of the longitudinal sinus, and are connected with the opening of the veins; but, although their existence is fully admitted, the nature of their use has, by no means, been clearly ascertained.

In 1723, James Benignus Winslow, an eminent Professor of Anatomy, Physic, and Surgery, in the University of Paris, published his *Treatise on Anatomy*,* which yet maintains a high reputation, being remarkable for its clearness, conciseness, and excellence of arrangement.

To those to whom the name of Emmanuel Swedenborg is only known in connection with his mystic delusions, it may appear extraordinary to meet with it in a history of Medicine. But Swedenborg, like Swammerdam, was not always the victim of a disordered imagination and delusive fantasies, but in early life was distinguished for his gaiety, his talents, and his erudition; and, besides other works not connected with the subject of medicine, published in 1742 his great Anatomical and Physiological work,† in the first chapter or paragraph, as he terms it, of which he discusses the composition, and what he styles, the genuineessence of the blood; in the second he treats of the circula-

* *Exposition Anatomique de la structure du corps humain.* 4to. 1723.

† *Oeconomia Regni Animalis in transactiones divisa, quarum hæc prima de sanguine ejus arteriis venis et corde agit.* 4to. Amstelodami. 1742.

tion, and the arteries and veins with their coats ; in the third, of the formation of the chick in the egg, and the first rudiments (*inchoamenta*) of the arteries, veins, and heart ; in the fourth, of the circulation before birth, the foramen ovale and arterial canal of the foetal heart ; the fifth treats of the heart of the sea-turtle ; the sixth of the coronary and other vessels belonging to the heart ; the seventh of the motion of the heart in adults, illustrated by a plate ; and the eighth and last, giving an introduction to a rational physiology, or that science which treats of the essence and the nature of the soul. Such is a brief analysis of the contents of this singular volume, which contains much erudition, not, however, unmixed with the hypothetical jargon of the day.

Theophilus de Bordeaux, in a small volume which he published on the pulse in 1766,* went far beyond Solano, and far indeed beyond what can be followed in practice, in his discrimination of the endless varieties of pulse. In another work, which he published on the mucous tissue and cellular membrane, he disingenuously claimed as his own the discovery of some properties of the cellular membrane, which really were made by Haller and others. The work, nevertheless, is one of merit. He had in 1746 published a duodecimo volume of letters, on the mineral waters of Bearn.† De Bordeaux imagined he had discover-

* *Recherches sur le pouls par rapport aux crises*. 12mo. Paris, 1766.

† *Lettres contenant des essais sur l'histoire des eaux minérales du Béarn, &c.* 12mo. 1746.

ed a duct leading from the thyroid gland into the trachea.

In 1760, Peter Camper, a distinguished physician and surgeon, published at Amsterdam his magnificent work on Anatomy,* the plates of which, from drawings of his own, are remarkable for their accuracy; but death, unhappily, interrupted the completion of his design. Camper, a short time before his death, published an account of his method of performing the operation of lithotomy, in a Dutch journal at Amsterdam; it had been communicated to him, he said, by M. Louis, who informed him he had not lost a patient by the operation since he had adopted it. There was little novelty, however, in the method, which had been introduced by Peter Franco, who had died nearly three centuries before, but which method had been discontinued on account of its numerous inconveniencies. About the year 1774 he communicated an account of the obstetric lever of Rouenhuysen, to the royal Academy of Surgeons at Paris, who, in consequence, admitted him as a foreign associate.

In 1771 appeared the first part of a work on the Natural History of the teeth,† by Mr., afterwards

* *Demonstrationum Anatomico-pathologicarum. Liber primus, in folio maximo cum quatuor figuris* and in 1762, *Liber secundus, continens pelvis humanæ fabricam et morbos. Folio. Amstelædami.*

† *On the Natural History of the Teeth. 4to. London, 1771.*

Dr. John Hunter, brother to the equally celebrated Dr. William Hunter, who had commenced his career in London as an assistant to Dr. James Douglas, and became afterwards an eminent teacher of Anatomy himself.* Dr. John Hunter, the younger brother, rose to equal eminence as a public lecturer, and both brothers acquired great celebrity, by the splendid museums which they formed. The second part of Dr. John Hunter's work on teeth, containing an account of the diseases to which they are subject, appeared in 1778. Both works displayed great accuracy of research, and are highly valuable to the practical dentist. His work on Syphilis, was published in 1786, and however severely criticized on its first appearance, both in point of theory and practice, will ever remain a monument of his sagacity and observation. Dr. Hunter died suddenly, while in the act of turning round to speak to one of the physicians at St. George's Hospital, on the 16th of October, 1793, of a paroxysm of angina pectoris, a complaint to which he had been for some years subject, in the sixty-sixth year of his age. His heart was found, on dissection, to be the chief seat of disease: it appeared reduced in size, the coronary arteries were completely ossified, and ossification had commenced in the valves. Equally industrious and persevering with his elder brother,

* Among other pupils who attended the lectures of this distinguished teacher, was the celebrated Dr. Edward Jenner, to whom humanity is so deeply indebted for diffusing the practice of vaccination.

John appears to have considerably surpassed him in originality of genius, and powers of investigation; and his general character fully justified the opinion pronounced by Lavater on seeing his portrait, painted by Sir Joshua Reynolds, "This man thinks for himself."

William Cruikshank, a celebrated Anatomist, who was born at Edinburgh in 1746, and for many years filled the post of librarian to the late Dr. William Hunter, and afterwards became his assistant lecturer, published in 1766, his *Anatomy of the absorbents*,* in which he described the structure and situation of the valvular lymphatic absorbents. His situation with Dr. Hunter afforded an ample field for the display of his abilities, and his assiduity being fully equal to his skill, he contributed largely to enrich Dr. Hunter's splendid museum, by his beautiful preparations, and especially by his curious injections of the lymphatics. In 1795 he communicated to the Royal Society, a valuable paper, on the regeneration of the nerves, which will be found in the philosophical transactions of that year; in the same year he published a pamphlet on insensible perspiration; and two years after, an account of the appearances in the ovaria of rabbits, at different stages of their pregnancy. But his work on the absorbents is that which will perpetuate his name, being indisputably the most correct and valuable which we

* *Anatomy of the absorbent vessels of the human body.* London, 1766.

have upon the subject. Cruickshank died on the 27th of June, 1800.

A posthumous work in Latin on the fracture of the patella and olecranon, by the late Peter Camper, enriched with cases, illustrations from, and references to a variety of authors, was published in 1789, in quarto, by his son Adrian Gilles Camper, at the Hague, accompanied by two plates, which are but indifferently executed, and in the last of which a representation is given of what is called a perfect cure of a fractured patella, although the two portions of the bone remained separated by an interval of not less than four inches.

Although our contracted limits have compelled the omission of many names and publications which justly claimed insertion, it would be unpardonable to pass without some notice the splendid and accurate work on the gravid uterus,* which was left incomplete, at the time of his death in March 1783, by the late Dr. William Hunter. This magnificent work, in which all the principal changes which occur during the nine months of pregnancy, are exhibited in a degree of perfection never before attained, in a series of thirty-four folio plates, executed from drawings of subjects and preparations made by the first artists, first appeared in 1775, and contained the first representation of the retroverted uterus, and the *membrana decidua reflexa*, discovered by the au-

* The Anatomy of the gravid uterus. London, 1775.

hor. He did not, however, live to complete the anatomical description of the figures, which his nephew, the late eminent Dr. Baillie, at length did in 1794, when he published this long desired work.*

The last anatomical work which our limits permit of being noticed, is the excellent system of Anatomy in four volumes,† published by that distinguished Surgeon and Anatomist, John Bell. This work exhibits the most complete and comprehensive view of the progress and of the discoveries in Anatomy up to the period of its publication. Only the two first of these volumes belong to the eighteenth century, of which the first, published in 1793, contains the osteology, and myology; the second containing the anatomy of the heart and arteries, appeared in 1797. These, and the two remaining volumes, are of too well known merit, to require commendation here.

Having now reached the close of the History of Medicine, Surgery, and Anatomy, from the creation of the world to the commencement of the nineteenth century, and endeavoured to exhibit as fully and as faithfully as the scanty sources of information within our reach would permit, the progressive development of the human fa-

* Anatomical description of the gravid uterus and its contents, London, 1794.

† Anatomy of the Human Body. vol. i. Anatomy of the bones, muscles, and joints. Edinburgh, 1793. vol. ii. Anatomy of the heart and arteries. Edinburgh, 1797. vol. iii. containing the nervous system, London, 1803, vol. iv. containing the abdominal viscera, &c. London, 1804, all in large octavo.

culties, with the occasional interruptions and fluctuations which it experienced in proportion as the human mind was left more or less free from the shackles of arbitrary power or spiritual despotism, we may, we trust, be permitted without reproach to lay down our weary pen without entering upon the vast, although tempting fields of botany, chemistry, and pharmacy, which spread in smiling, but in almost endless, perspective beyond our view. Gladly would we cull a wreath from the lovely garden of the Swedish sage to grace the brows of Harvey; or pluck a gem from the ample stores of our regretted Davy, to lend an attraction to the uninviting pages of our own arid, but far from barren history. But, both botany and chemistry, during the eighteenth century, attained to a magnitude and importance which forbids their being longer treated as the handmaids of medicine. They call for the labours of a distinct historian.

THE END.

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